

Gravatt, Dan

From: Fisher, Emily <Emily.Fisher@tetrtech.com>
Sent: Tuesday, April 30, 2013 11:42 AM
To: Gravatt, Dan
Subject: FW: Files from 160-2075-1 Characterization - Report
Attachments: J2075-1 UDS Level 2 Report Final Report.pdf

From: Starman, Erika [mailto:erika.starman@testamericainc.com]

Sent: Tuesday, April 30, 2013 11:36 AM

To: Fisher, Emily

Subject: Files from 160-2075-1 Characterization - Report

Good Morning,

Attached is the report for Job 160-2075-1. The Radium 226 will follow after the ingrowth period is complete.

Regards,

Please let us know if we met your expectations by rating the service you received from TestAmerica on this project by visiting our website at: [Project Feedback](#)

ERIKA K STARMAN

TestAmerica St. Louis

THE LEADER IN ENVIRONMENTAL TESTING

Tel: 314.298.566

www.testamericainc.com

Reference: [005644]

Attachments: 1

0714

40473107

3.0



Superfund

b4-61

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-2075-1
Client Project/Site: Characterization

For:
Tetra Tech EM Inc.
415 Oak Street
Kansas City, Missouri 64106

Attn: Ms. Emily Fisher



Authorized for release by:
4/30/2013 11:32:41 AM

Erika Starman
Project Manager I
erika.starman@testamericainc.com

LINKS

Review your project
results through

Total Access

Have a Question?

Ask
The
Expert

Visit us at:

www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page	1
Table of Contents	2
Case Narrative	3
Chain of Custody	6
Receipt Checklists	7
Definitions/Glossary	8
Method Summary	9
Sample Summary	10
Detection Summary	11
Client Sample Results	14
QC Sample Results	29
QC Association Summary	42
Surrogate Summary	45
Tracer Carrier Summary	46

Case Narrative

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Job ID: 160-2075-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: Tetra Tech EM Inc.

Project: Characterization

Report Number: 160-2075-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 4/11/2013 4:09 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 18.0° C and 19.0° C.

VOLATILE ORGANIC COMPOUNDS (GC MS)

Samples 6 (160-2075-1), 7 (160-2075-2), 8 (160-2075-3), 9 (160-2075-4), 10 (160-2075-5) and 11 (160-2075-6) were analyzed for volatile organic compounds (GC MS) in accordance with EPA SW-846 Method 8260C. The samples were analyzed on 04/12/2013 and 04/15/2013.

1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene and 1,3-Dichlorobenzene were detected in method blank MB 160-46185/2 at levels that were above the method detection limit but below the reporting limit. Refer to the QC report for details.

1,1-Dichloroethene and Bromomethane failed the recovery criteria low for LCS 160-46184/4. Acetone exceeded the rpd limit for LCSD 160-46185/5. Refer to the QC report for details.

A full list spike was utilized for this method. Due to the large number of spiked analytes, there is a high probability that one or more analytes will recover outside acceptance limits. The laboratory's SOP allows for 5 analytes to recover outside criteria for this method when

Case Narrative

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Job ID: 160-2075-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

a full list spike is utilized. The LCS/LCSD associated with batch 46184 had 2 analytes outside control limits; therefore, re-extraction/re-analysis was not performed. These results have been reported and qualified.

The preservative used is not concentrated enough for the sample pH to be less than 2 for samples: 10 (160-2075-5), 11 (160-2075-6), 8 (160-2075-3), 9 (160-2075-4). The samples were analyzed within 7 days from collection and within the amount of time allowed for un-preserved samples.

The following sample was diluted to bring the concentration of target analytes within the calibration range: 7 (160-2075-2). Elevated reporting limits (RLs) are provided.

No other difficulties were encountered during the VOCs analyses.

All other quality control parameters were within the acceptance limits.

TOTAL METALS (ICP)

Samples 6 (160-2075-1), 7 (160-2075-2), 8 (160-2075-3), 9 (160-2075-4), 10 (160-2075-5) and 11 (160-2075-6) were analyzed for total metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 04/15/2013 and analyzed on 04/16/2013 and 04/17/2013.

Zinc was detected in method blank MB 160-46024/1-A at a level that was above the method detection limit but below the reporting limit. Refer to the QC report for details.

Samples 6 (160-2075-1)[10X], 7 (160-2075-2)[10X], 8 (160-2075-3)[10X], 9 (160-2075-4)[10X], 10 (160-2075-5)[10X], 10 (160-2075-5)[20X] and 11 (160-2075-6)[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

The presence of the '4' qualifier in the data indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount.

Analytical Batch 46401

Prep Batch 46024

The matrix spike duplicate (MSD) recovery for batch 46024 was outside upper control limits for thallium. The RPD was within method limits indicating a possible matrix interference. The associated laboratory control sample (LCS) recovery met acceptance criteria.

Prep Batch 46025

The following samples were diluted due to the nature of the sample matrix. The sample digestates were yellow in color: (160-2075-2 MS), (160-2075-2 MSD), (160-2075-2 SD), 10 (160-2075-5), 11 (160-2075-6), 6 (160-2075-1), 7 (160-2075-2), 8 (160-2075-3), 9 (160-2075-4). Elevated reporting limits (RLs) are provided.

Analytical Batch 46686

The following sample was diluted to bring the concentration of target analytes (calcium) within the calibration range: 10 (160-2075-5). Elevated reporting limits (RLs) are provided.

No other difficulties were encountered during the metals analyses.

All other quality control parameters were within the acceptance limits.

TOTAL MERCURY

Samples 6 (160-2075-1), 7 (160-2075-2), 8 (160-2075-3), 9 (160-2075-4), 10 (160-2075-5) and 11 (160-2075-6) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 04/15/2013.

Mercury was detected in method blank MB 160-46002/1-A at a level that was above the method detection limit but below the reporting limit. Refer to the QC report for details.

Mercury failed the recovery criteria high for LCS 160-46002/2-A. This analyte was biased high in the LCS and was not detected in the

Case Narrative

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Job ID: 160-2075-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

associated samples; therefore, the data have been reported. Refer to the QC report for details.

Mercury failed the recovery criteria high for the MS and MSD of sample (160-2075-1) in batch 160-46210. The recoveries had a high bias, however, the associated samples were non-detect; therefore, the data have been reported. Refer to the QC report for details.

The continuing calibration verifications (CCVs) (CCV 160-46210/103), (CCV 160-46210/115), (CCV 160-46210/118) for analytical batch 46210 recovered above the upper control limit. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

No other difficulties were encountered during the mercury analyses.

All other quality control parameters were within the acceptance limits.

RADIUM-228 (GFPC)

Samples 6 (160-2075-1), 7 (160-2075-2), 8 (160-2075-3), 9 (160-2075-4), 10 (160-2075-5) and 11 (160-2075-6) were analyzed for Radium-228 (GFPC) in accordance with EPA 904. The samples were prepared on 04/12/2013 and analyzed on 04/25/2013.

The following samples were run at a reduced aliquot of 500mls because they contained sediment: 10 (160-2075-5), 6 (160-2075-1). The detection goal was not met for the following sample due to reduced sample volume: 10 (160-2075-5). Analytical results are reported with the detection limit achieved.

No difficulties were encountered during the Radium-228 analyses.

All quality control parameters were within the acceptance limits.

ISOTOPIC THORIUM (ALPHA SPECTROMETRY)

Samples 6 (160-2075-1), 7 (160-2075-2), 8 (160-2075-3), 9 (160-2075-4), 10 (160-2075-5) and 11 (160-2075-6) were analyzed for Isotopic Thorium (Alpha Spectrometry) in accordance with DOE. The samples were prepared on 04/15/2013 and analyzed on 04/16/2013.

Thorium-230 was detected in method blank MB 160-45940/1-A at a level that was above the method detection limit but below the reporting limit. Refer to the QC report for details.

The sample aliquots were reduced to 100mL due to high solid content. The samples also appeared to be soapy. Possible matrix interference. (160-2075-1 DU), 10 (160-2075-5), 11 (160-2075-6), 6 (160-2075-1), 7 (160-2075-2), 8 (160-2075-3), 9 (160-2075-4). The Thorium samples: (160-2075-1 DU), 10 (160-2075-5), 11 (160-2075-6), 6 (160-2075-1), 9 (160-2075-4), did not meet the CRDL due to the reduced sample volume. The data have been qualified and reported.

No other difficulties were encountered during the Isotopic Thorium analyses.

All other quality control parameters were within the acceptance limits.

ISOTOPIC URANIUM (ALPHA SPECTROMETRY)

Samples 6 (160-2075-1), 7 (160-2075-2), 8 (160-2075-3), 9 (160-2075-4), 10 (160-2075-5) and 11 (160-2075-6) were analyzed for Isotopic Uranium (Alpha Spectrometry) in accordance with DOE. The samples were prepared on 04/15/2013 and analyzed on 04/16/2013.

The sample aliquots were reduced to 100mL due to high solid content. The samples also appeared to be soapy. Possible matrix interference. (160-2075-1 DU), 10 (160-2075-5), 11 (160-2075-6), 6 (160-2075-1), 7 (160-2075-2), 8 (160-2075-3), 9 (160-2075-4)

No other difficulties were encountered during the Isotopic Uranium analyses.

All other quality control parameters were within the acceptance limits.

TestAmerica St. Louis

13715 Rider Trail North
Earth City, MO 63045
Phone (314) 298-8566 Fax (314) 298-8757

Chain of Custody Record

CH 322
TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information		Sampler: <i>Dan Gravatt / Host</i>		Lab PM: <i>Starman, Erika K</i>		Carrier Tracking No(s):		COC No: 160-313-149.2							
Client Contact: Ms. Emily Fisher		Phone: <i>913 551 7324</i>		E-Mail: <i>erika.starman@testamericainc.com</i>				Page: Page 2 of 2							
Company: Tetra Tech EM Inc.								Job #:							
Address: 415 Oak Street		Due Date Requested:				Analysis Requested		Preservation Codes:							
City: Kansas City		TAT Requested (days):		<i>Standard TAT</i>				A - HCl M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - ph 4-5 L - EDA Z - other (specify)							
State, Zip: MO, 64106		PO #:		Purchase Order Requested				Other:							
Phone:		WO #:													
Email: <i>emily.fisher@tetrtech.com</i>		Project #:		16001850											
Project Name: Characterization		SSOW#:													
Site: <i>West Lake Landfill</i>															
Sample Identification		Sample Date	Sample Time	Sample Type (C=comp, G=grab) BT=Tissue, A=Air	Matrix (W=water, S=solid, O=waste/foliage)	Field Filtered Sample (Y=Yes or N=No)	Performance (MSD/M3010)	Ap1R_U - Standard Target List	Ap1R_Tl - Standard Target List	804.0 - Standard Target List	903.0 - Standard Target List	8010C, 7470A	8280C, 101M, 2	Total Number of containers	Special Instructions/Note:
						X	D D D D D A								
6		4/11/13	0905	G	W	N	X X X X X X							8	
7		4/11/13	1138	G	W	N	X X X X X X							8	
8		4/11/13	1335	G	W	N	X X X X X X							8	
9		4/11/13	1425	G	W	N	X X X X X X							8	
10		4/11/13	1449	G	W	N	X X X X X X							8	
11		4/11/13	1533	G	W	N	X X X X X X							8	
Possible Hazard Identification		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)													
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input checked="" type="checkbox"/> Unknown <input type="checkbox"/> Radiological		<input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For Months													
Deliverable Requested: I, II, III, IV, Other (specify)												Special Instructions/QC Requirements:			
Empty Kit Relinquished by: <i>J.R. Host</i>		Date: <i>4/11/13</i>	Time: <i>16:09</i>	Method of Shipment:											
Relinquished by: <i>J.R. Host</i>		Date/Time: <i>4/11/13 16:09</i>	Company:	Received by: <i>All Clark</i>		Date/Time: <i>4/11/13</i>	Company: <i>TA STL</i>								
Relinquished by:		Date/Time:	Company:	Received by:		Date/Time:	Company:								
Relinquished by:		Date/Time:	Company:	Received by:		Date/Time:	Company:								
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:											

Login Sample Receipt Checklist

Client: Tetra Tech EM Inc.

Job Number: 160-2075-1

Login Number: 2075

List Source: TestAmerica St. Louis

List Number: 1

Creator: Clarke, Jill

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	False	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Definitions/Glossary

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD exceeds the control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
*	RPD of the LCS and LCSD exceeds the control limits

Metals

Qualifier	Qualifier Description
*	LCS or LCSD exceeds the control limits
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC exceeds the control limits.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F	MS or MSD exceeds the control limits
4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.

Rad

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
G	The Sample MDC is greater than the requested RL.

Glossary

Abbreviation

□	These commonly used abbreviations may or may not be present in this report.
%R	Listed under the "D" column to designate that the result is reported on a dry weight basis
CNF	Percent Recovery
DER	Contains no Free Liquid
DL, RA, RE, IN	Duplicate error ratio (normalized absolute difference)
DLC	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
MDA	Decision level concentration
EDL	Minimum detectable activity
MDC	Estimated Detection Limit
MDL	Minimum detectable concentration
ML	Method Detection Limit
ND	Minimum Level (Dioxin)
PQL	Not detected at the reporting limit (or MDL or EDL if shown)
QC	Practical Quantitation Limit
RER	Quality Control
RL	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method Summary

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL SL
6010C	Metals (ICP)	SW846	TAL SL
7470A	Mercury (CVAA)	SW846	TAL SL
904.0	Radium-228 (GFPC)	EPA	TAL SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	TAL SL
A-01-R	Isotopic Thorium (Alpha Spectrometry)	DOE	TAL SL

Protocol References:

DOE = U.S. Department of Energy

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

TestAmerica St. Louis

Sample Summary

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-2075-1	6	Water	04/11/13 09:05	04/11/13 16:09
160-2075-2	7	Water	04/11/13 11:38	04/11/13 16:09
160-2075-3	8	Water	04/11/13 13:35	04/11/13 16:09
160-2075-4	9	Water	04/11/13 14:25	04/11/13 16:09
160-2075-5	10	Water	04/11/13 14:49	04/11/13 16:09
160-2075-6	11	Water	04/11/13 15:33	04/11/13 16:09

TestAmerica St. Louis

Detection Summary

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Client Sample ID: 6

Lab Sample ID: 160-2075-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	37000		2000	800	ug/L	10	6010C		Total/NA
Arsenic	21	J	100	20	ug/L	10	6010C		Total/NA
Barium	780		500	40	ug/L	10	6010C		Total/NA
Calcium	170000		10000	1100	ug/L	10	6010C		Total/NA
Chromium	50	J	100	31	ug/L	10	6010C		Total/NA
Copper	60	J	250	46	ug/L	10	6010C		Total/NA
Iron	46000		1000	280	ug/L	10	6010C		Total/NA
Lead	70	J	100	15	ug/L	10	6010C		Total/NA
Magnesium	61000		10000	1300	ug/L	10	6010C		Total/NA
Manganese	1200		150	33	ug/L	10	6010C		Total/NA
Sodium	38000		10000	3200	ug/L	10	6010C		Total/NA
Vanadium	100	J	500	41	ug/L	10	6010C		Total/NA
Zinc	230	B	200	52	ug/L	10	6010C		Total/NA
Mercury	0.14	J ^ B *	0.20	0.060	ug/L	1	7470A		Total/NA

Client Sample ID: 7

Lab Sample ID: 160-2075-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dichlorobenzene	5.1		5.0	0.35	ug/L	1	8260C		Total/NA
Benzene	840		50	2.5	ug/L	1	8260C		Total/NA
Chloroethane	2.1	J	10	0.38	ug/L	1	8260C		Total/NA
cis-1,2-Dichloroethene	0.17	J	5.0	0.16	ug/L	1	8260C		Total/NA
Ethylbenzene	18		5.0	0.30	ug/L	1	8260C		Total/NA
Isopropylbenzene	1.5	J	5.0	0.26	ug/L	1	8260C		Total/NA
Methyl tert-butyl ether	3.1	J	5.0	0.40	ug/L	1	8260C		Total/NA
m-Xylene & p-Xylene	35		5.0	0.57	ug/L	1	8260C		Total/NA
o-Xylene	11		5.0	0.32	ug/L	1	8260C		Total/NA
Styrene	0.75	J	5.0	0.35	ug/L	1	8260C		Total/NA
Toluene	1200		50	10	ug/L	1	8260C		Total/NA
Xylenes, Total	46		10	0.85	ug/L	1	8260C		Total/NA
Barium	990		500	40	ug/L	10	6010C		Total/NA
Calcium	150000		10000	1100	ug/L	10	6010C		Total/NA
Iron	22000		1000	280	ug/L	10	6010C		Total/NA
Magnesium	78000		10000	1300	ug/L	10	6010C		Total/NA
Manganese	160		150	33	ug/L	10	6010C		Total/NA
Potassium	17000	J	50000	17000	ug/L	10	6010C		Total/NA
Sodium	180000		10000	3200	ug/L	10	6010C		Total/NA

Client Sample ID: 8

Lab Sample ID: 160-2075-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	1.2	J	5.0	0.25	ug/L	1	8260C		Total/NA
Toluene	2.4	J	5.0	1.0	ug/L	1	8260C		Total/NA
Barium	2200		500	40	ug/L	10	6010C		Total/NA
Calcium	290000		10000	1100	ug/L	10	6010C		Total/NA
Iron	35000		1000	280	ug/L	10	6010C		Total/NA
Lead	17	J	100	15	ug/L	10	6010C		Total/NA
Magnesium	85000		10000	1300	ug/L	10	6010C		Total/NA
Manganese	680		150	33	ug/L	10	6010C		Total/NA
Potassium	26000	J	50000	17000	ug/L	10	6010C		Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica St. Louis

Detection Summary

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Client Sample ID: 8 (Continued)

Lab Sample ID: 160-2075-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	340000		10000	3200	ug/L	10	6010C		Total/NA

Client Sample ID: 9

Lab Sample ID: 160-2075-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.57	J	5.0	0.25	ug/L	1	8260C		Total/NA
Chlorobenzene	1.6	J	5.0	0.38	ug/L	1	8260C		Total/NA
Methyl tert-butyl ether	0.59	J	5.0	0.40	ug/L	1	8260C		Total/NA
Barium	2300		500	40	ug/L	10	6010C		Total/NA
Calcium	300000		10000	1100	ug/L	10	6010C		Total/NA
Iron	32000		1000	280	ug/L	10	6010C		Total/NA
Magnesium	84000		10000	1300	ug/L	10	6010C		Total/NA
Manganese	510		150	33	ug/L	10	6010C		Total/NA
Potassium	28000	J	50000	17000	ug/L	10	6010C		Total/NA
Sodium	390000		10000	3200	ug/L	10	6010C		Total/NA
Mercury	0.066	J ^ B *	0.20	0.060	ug/L	1	7470A		Total/NA

Client Sample ID: 10

Lab Sample ID: 160-2075-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.42	J	5.0	0.25	ug/L	1	8260C		Total/NA
Chlorobenzene	60		5.0	0.38	ug/L	1	8260C		Total/NA
Aluminum	53000		2000	800	ug/L	10	6010C		Total/NA
Antimony	48	J	100	40	ug/L	10	6010C		Total/NA
Arsenic	72	J	100	20	ug/L	10	6010C		Total/NA
Barium	6300		500	40	ug/L	10	6010C		Total/NA
Calcium	890000		20000	2100	ug/L	20	6010C		Total/NA
Chromium	63	J	100	31	ug/L	10	6010C		Total/NA
Cobalt	150	J	500	40	ug/L	10	6010C		Total/NA
Copper	78	J	250	46	ug/L	10	6010C		Total/NA
Iron	290000		1000	280	ug/L	10	6010C		Total/NA
Lead	170		100	15	ug/L	10	6010C		Total/NA
Magnesium	140000		10000	1300	ug/L	10	6010C		Total/NA
Manganese	8800		150	33	ug/L	10	6010C		Total/NA
Nickel	350	J	400	130	ug/L	10	6010C		Total/NA
Potassium	17000	J	50000	17000	ug/L	10	6010C		Total/NA
Sodium	160000		10000	3200	ug/L	10	6010C		Total/NA
Vanadium	190	J	500	41	ug/L	10	6010C		Total/NA
Zinc	640	B	200	52	ug/L	10	6010C		Total/NA
Mercury	0.16	J ^ B *	0.20	0.060	ug/L	1	7470A		Total/NA

Client Sample ID: 11

Lab Sample ID: 160-2075-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	0.41	J	5.0	0.39	ug/L	1	8260C		Total/NA
1,2-Dichlorobenzene	1.9	J	5.0	0.28	ug/L	1	8260C		Total/NA
1,4-Dichlorobenzene	10		5.0	0.35	ug/L	1	8260C		Total/NA
Benzene	4.9	J	5.0	0.25	ug/L	1	8260C		Total/NA
Chlorobenzene	3.4	J	5.0	0.38	ug/L	1	8260C		Total/NA
Dichlorodifluoromethane	2.7	J	10	0.45	ug/L	1	8260C		Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica St. Louis

Detection Summary

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Client Sample ID: 11 (Continued)

Lab Sample ID: 160-2075-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Isopropylbenzene	1.9	J	5.0	0.26	ug/L	1	8260C		Total/NA
Methyl tert-butyl ether	0.67	J	5.0	0.40	ug/L	1	8260C		Total/NA
Methylcyclohexane	0.28	J	10	0.26	ug/L	1	8260C		Total/NA
m-Xylene & p-Xylene	14		5.0	0.57	ug/L	1	8260C		Total/NA
o-Xylene	7.7		5.0	0.32	ug/L	1	8260C		Total/NA
Toluene	5.0		5.0	1.0	ug/L	1	8260C		Total/NA
Xylenes, Total	22		10	0.85	ug/L	1	8260C		Total/NA
Barium	470	J	500	40	ug/L	10	6010C		Total/NA
Calcium	72000		10000	1100	ug/L	10	6010C		Total/NA
Iron	20000		1000	280	ug/L	10	6010C		Total/NA
Magnesium	60000		10000	1300	ug/L	10	6010C		Total/NA
Manganese	260		150	33	ug/L	10	6010C		Total/NA
Potassium	190000		50000	17000	ug/L	10	6010C		Total/NA
Sodium	410000		10000	3200	ug/L	10	6010C		Total/NA
Vanadium	47	J	500	41	ug/L	10	6010C		Total/NA
Zinc	78	J B	200	52	ug/L	10	6010C		Total/NA
Mercury	0.12	J ^ B *	0.20	0.060	ug/L	1	7470A		Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica St. Louis

Client Sample Results

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Client Sample ID: 6

Date Collected: 04/11/13 09:05
Date Received: 04/11/13 16:09

Lab Sample ID: 160-2075-1

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	0.29	ug/L			04/12/13 03:38	1
1,1,2,2-Tetrachloroethane	ND		5.0	0.43	ug/L			04/12/13 03:38	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.0	0.25	ug/L			04/12/13 03:38	1
1,1,2-Trichloroethane	ND		5.0	0.57	ug/L			04/12/13 03:38	1
1,1-Dichloroethane	ND		5.0	0.39	ug/L			04/12/13 03:38	1
1,1-Dichloroethene	ND *		5.0	0.37	ug/L			04/12/13 03:38	1
1,2,4-Trichlorobenzene	ND		5.0	0.55	ug/L			04/12/13 03:38	1
1,2-Dibromo-3-Chloroproppane	ND		10	1.2	ug/L			04/12/13 03:38	1
1,2-Dichlorobenzene	ND		5.0	0.28	ug/L			04/12/13 03:38	1
1,2-Dichloroethane	ND		5.0	0.37	ug/L			04/12/13 03:38	1
1,2-Dichloropropane	ND		5.0	0.32	ug/L			04/12/13 03:38	1
1,3-Dichlorobenzene	ND		5.0	0.23	ug/L			04/12/13 03:38	1
1,4-Dichlorobenzene	ND		5.0	0.35	ug/L			04/12/13 03:38	1
2-Butanone (MEK)	ND		20	0.39	ug/L			04/12/13 03:38	1
2-Hexanone	ND		20	0.59	ug/L			04/12/13 03:38	1
4-Methyl-2-pentanone (MIBK)	ND		20	0.33	ug/L			04/12/13 03:38	1
Acetone	ND		20	6.7	ug/L			04/12/13 03:38	1
Benzene	ND		5.0	0.25	ug/L			04/12/13 03:38	1
Bromoform	ND		5.0	0.37	ug/L			04/12/13 03:38	1
Bromomethane	ND *		10	0.40	ug/L			04/12/13 03:38	1
Carbon disulfide	ND		5.0	0.37	ug/L			04/12/13 03:38	1
Carbon tetrachloride	ND		5.0	0.36	ug/L			04/12/13 03:38	1
Chlorobenzene	ND		5.0	0.38	ug/L			04/12/13 03:38	1
Dibromochloromethane	ND		5.0	0.33	ug/L			04/12/13 03:38	1
Chloroethane	ND		10	0.38	ug/L			04/12/13 03:38	1
Chloroform	ND		5.0	0.15	ug/L			04/12/13 03:38	1
Chloromethane	ND		10	0.55	ug/L			04/12/13 03:38	1
cis-1,2-Dichloroethene	ND		5.0	0.16	ug/L			04/12/13 03:38	1
cis-1,3-Dichloropropene	ND		5.0	0.34	ug/L			04/12/13 03:38	1
Cyclohexane	ND		10	0.36	ug/L			04/12/13 03:38	1
Bromodichloromethane	ND		5.0	0.25	ug/L			04/12/13 03:38	1
Dichlorodifluoromethane	ND		10	0.45	ug/L			04/12/13 03:38	1
Ethylbenzene	ND		5.0	0.30	ug/L			04/12/13 03:38	1
1,2-Dibromoethane (EDB)	ND		5.0	0.44	ug/L			04/12/13 03:38	1
Isopropylbenzene	ND		5.0	0.26	ug/L			04/12/13 03:38	1
Methyl acetate	ND		5.0	2.3	ug/L			04/12/13 03:38	1
Methyl tert-butyl ether	ND		5.0	0.40	ug/L			04/12/13 03:38	1
Methylcyclohexane	ND		10	0.26	ug/L			04/12/13 03:38	1
Methylene Chloride	ND		5.0	1.7	ug/L			04/12/13 03:38	1
m-Xylene & p-Xylene	ND		5.0	0.57	ug/L			04/12/13 03:38	1
o-Xylene	ND		5.0	0.32	ug/L			04/12/13 03:38	1
Styrene	ND		5.0	0.35	ug/L			04/12/13 03:38	1
Tetrachloroethene	ND		5.0	0.28	ug/L			04/12/13 03:38	1
Toluene	ND		5.0	1.0	ug/L			04/12/13 03:38	1
trans-1,2-Dichloroethene	ND		5.0	0.18	ug/L			04/12/13 03:38	1
trans-1,3-Dichloropropene	ND		5.0	0.35	ug/L			04/12/13 03:38	1
Trichloroethene	ND		5.0	0.29	ug/L			04/12/13 03:38	1
Trichlorofluoromethane	ND		5.0	0.22	ug/L			04/12/13 03:38	1
Vinyl chloride	ND		5.0	0.43	ug/L			04/12/13 03:38	1

TestAmerica St. Louis

Client Sample Results

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Client Sample ID: 6

Date Collected: 04/11/13 09:05
Date Received: 04/11/13 16:09

Lab Sample ID: 160-2075-1

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	ND		10	0.85	ug/L			04/12/13 03:38	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	97		85 - 115					04/12/13 03:38	1
Dibromofluoromethane (Surr)	105		85 - 119					04/12/13 03:38	1
4-Bromofluorobenzene (Surr)	97		82 - 121					04/12/13 03:38	1
1,2-Dichloroethane-d4 (Surr)	111		82 - 132					04/12/13 03:38	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	37000		2000	800	ug/L		04/15/13 13:35	04/16/13 17:53	10
Antimony	ND		100	40	ug/L		04/15/13 13:35	04/16/13 17:53	10
Arsenic	21 J		100	20	ug/L		04/15/13 13:35	04/16/13 17:53	10
Barium	780		500	40	ug/L		04/15/13 13:35	04/16/13 17:53	10
Beryllium	ND		50	6.1	ug/L		04/15/13 13:35	04/16/13 17:53	10
Cadmium	ND		50	9.1	ug/L		04/15/13 13:35	04/16/13 17:53	10
Calcium	170000		10000	1100	ug/L		04/15/13 13:35	04/16/13 17:53	10
Chromium	50 J		100	31	ug/L		04/15/13 13:35	04/16/13 17:53	10
Cobalt	ND		500	40	ug/L		04/15/13 13:35	04/16/13 17:53	10
Copper	60 J		250	46	ug/L		04/15/13 13:35	04/16/13 17:53	10
Iron	46000		1000	280	ug/L		04/15/13 13:35	04/16/13 17:53	10
Lead	70 J		100	15	ug/L		04/15/13 13:35	04/16/13 17:53	10
Magnesium	61000		10000	1300	ug/L		04/15/13 13:35	04/16/13 17:53	10
Manganese	1200		150	33	ug/L		04/15/13 13:35	04/16/13 17:53	10
Nickel	ND		400	130	ug/L		04/15/13 13:35	04/16/13 17:53	10
Potassium	ND		50000	17000	ug/L		04/15/13 13:35	04/16/13 17:53	10
Selenium	ND		150	27	ug/L		04/15/13 13:35	04/16/13 17:53	10
Silver	ND		100	60	ug/L		04/15/13 13:35	04/16/13 17:53	10
Sodium	38000		10000	3200	ug/L		04/15/13 13:35	04/16/13 17:53	10
Thallium	ND		200	40	ug/L		04/15/13 13:35	04/16/13 17:53	10
Vanadium	100 J		500	41	ug/L		04/15/13 13:35	04/16/13 17:53	10
Zinc	230 B		200	52	ug/L		04/15/13 13:35	04/16/13 17:53	10

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.14	J ^ B *	0.20	0.060	ug/L		04/15/13 12:47	04/15/13 19:29	1

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			(2σ+/-)	(2σ+/-)						
Radium-228	2.69		0.692	0.734	1.00	0.834	pCi/L	04/12/13 14:43	04/25/13 10:59	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	76.7		40 - 110					04/12/13 14:43	04/25/13 10:59	1
Y Carrier	87.5		40 - 110					04/12/13 14:43	04/25/13 10:59	1

TestAmerica St. Louis

Client Sample Results

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Client Sample ID: 6

Date Collected: 04/11/13 09:05
Date Received: 04/11/13 16:09

Lab Sample ID: 160-2075-1
Matrix: Water

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			(2σ+/-)	(2σ+/-)						
Thorium-228	2.28	G	1.30	1.31	1.00	1.36	pCi/L	04/15/13 05:56	04/16/13 20:03	1
Thorium-230	2.56		1.25	1.27	1.00	0.789	pCi/L	04/15/13 05:56	04/16/13 20:03	1
Thorium-232	2.30		1.17	1.18	1.00	0.620	pCi/L	04/15/13 05:56	04/16/13 20:03	1
Tracer	%Yield	Qualifier		Limits				Prepared	Analyzed	Dil Fac
Thorium-229	62.8			30 - 110				04/15/13 05:56	04/16/13 20:03	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			(2σ+/-)	(2σ+/-)						
Uranium-233/234	3.98		1.40	1.44	1.00	0.806	pCi/L	04/15/13 05:56	04/16/13 20:04	1
Uranium-235/236	-0.0828	U	0.0956	0.0958	1.00	0.794	pCi/L	04/15/13 05:56	04/16/13 20:04	1
Uranium-238	3.98		1.40	1.44	1.00	0.804	pCi/L	04/15/13 05:56	04/16/13 20:04	1
Tracer	%Yield	Qualifier		Limits				Prepared	Analyzed	Dil Fac
Uranium-232	80.5			30 - 110				04/15/13 05:56	04/16/13 20:04	1

Client Sample ID: 7

Date Collected: 04/11/13 11:38
Date Received: 04/11/13 16:09

Lab Sample ID: 160-2075-2

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	0.29	ug/L			04/12/13 04:02	1
1,1,2,2-Tetrachloroethane	ND		5.0	0.43	ug/L			04/12/13 04:02	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.0	0.25	ug/L			04/12/13 04:02	1
1,1,2-Trichloroethane	ND		5.0	0.57	ug/L			04/12/13 04:02	1
1,1-Dichloroethane	ND		5.0	0.39	ug/L			04/12/13 04:02	1
1,1-Dichloroethene	ND *		5.0	0.37	ug/L			04/12/13 04:02	1
1,2,4-Trichlorobenzene	ND		5.0	0.55	ug/L			04/12/13 04:02	1
1,2-Dibromo-3-Chloropropane	ND		10	1.2	ug/L			04/12/13 04:02	1
1,2-Dichlorobenzene	ND		5.0	0.28	ug/L			04/12/13 04:02	1
1,2-Dichloroethane	ND		5.0	0.37	ug/L			04/12/13 04:02	1
1,2-Dichloropropene	ND		5.0	0.32	ug/L			04/12/13 04:02	1
1,3-Dichlorobenzene	ND		5.0	0.23	ug/L			04/12/13 04:02	1
1,4-Dichlorobenzene	5.1		5.0	0.35	ug/L			04/12/13 04:02	1
2-Butanone (MEK)	ND		20	0.39	ug/L			04/12/13 04:02	1
2-Hexanone	ND		20	0.59	ug/L			04/12/13 04:02	1
4-Methyl-2-pentanone (MIBK)	ND		20	0.33	ug/L			04/12/13 04:02	1
Acetone	ND		20	6.7	ug/L			04/12/13 04:02	1
Benzene	840		50	2.5	ug/L			04/15/13 18:18	1
Bromoform	ND		5.0	0.37	ug/L			04/12/13 04:02	1
Bromomethane	ND *		10	0.40	ug/L			04/12/13 04:02	1
Carbon disulfide	ND		5.0	0.37	ug/L			04/12/13 04:02	1
Carbon tetrachloride	ND		5.0	0.36	ug/L			04/12/13 04:02	1
Chlorobenzene	ND		5.0	0.38	ug/L			04/12/13 04:02	1
Dibromochloromethane	ND		5.0	0.33	ug/L			04/12/13 04:02	1

TestAmerica St. Louis

Client Sample Results

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Client Sample ID: 7

Date Collected: 04/11/13 11:38

Date Received: 04/11/13 16:09

Lab Sample ID: 160-2075-2

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloroethane	2.1	J	10	0.38	ug/L			04/12/13 04:02	1
Chloroform	ND		5.0	0.15	ug/L			04/12/13 04:02	1
Chloromethane	ND		10	0.55	ug/L			04/12/13 04:02	1
cis-1,2-Dichloroethene	0.17	J	5.0	0.16	ug/L			04/12/13 04:02	1
cis-1,3-Dichloropropene	ND		5.0	0.34	ug/L			04/12/13 04:02	1
Cyclohexane	ND		10	0.36	ug/L			04/12/13 04:02	1
Bromodichloromethane	ND		5.0	0.25	ug/L			04/12/13 04:02	1
Dichlorodifluoromethane	ND		10	0.45	ug/L			04/12/13 04:02	1
Ethylbenzene	18		5.0	0.30	ug/L			04/12/13 04:02	1
1,2-Dibromoethane (EDB)	ND		5.0	0.44	ug/L			04/12/13 04:02	1
Isopropylbenzene	1.5	J	5.0	0.26	ug/L			04/12/13 04:02	1
Methyl acetate	ND		5.0	2.3	ug/L			04/12/13 04:02	1
Methyl tert-butyl ether	3.1	J	5.0	0.40	ug/L			04/12/13 04:02	1
Methylcyclohexane	ND		10	0.26	ug/L			04/12/13 04:02	1
Methylene Chloride	ND		5.0	1.7	ug/L			04/12/13 04:02	1
m-Xylene & p-Xylene	35		5.0	0.57	ug/L			04/12/13 04:02	1
o-Xylene	11		5.0	0.32	ug/L			04/12/13 04:02	1
Styrene	0.75	J	5.0	0.35	ug/L			04/12/13 04:02	1
Tetrachloroethene	ND		5.0	0.28	ug/L			04/12/13 04:02	1
Toluene	1200		50	10	ug/L			04/15/13 18:18	1
trans-1,2-Dichloroethene	ND		5.0	0.18	ug/L			04/12/13 04:02	1
trans-1,3-Dichloropropene	ND		5.0	0.35	ug/L			04/12/13 04:02	1
Trichloroethene	ND		5.0	0.29	ug/L			04/12/13 04:02	1
Trichlorofluoromethane	ND		5.0	0.22	ug/L			04/12/13 04:02	1
Vinyl chloride	ND		5.0	0.43	ug/L			04/12/13 04:02	1
Xylenes, Total	46		10	0.85	ug/L			04/12/13 04:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Sur)	97		85 - 115		04/12/13 04:02	1
Toluene-d8 (Sur)	100		85 - 115		04/15/13 18:18	1
Dibromofluoromethane (Sur)	91		85 - 119		04/12/13 04:02	1
Dibromofluoromethane (Sur)	101		85 - 119		04/15/13 18:18	1
4-Bromofluorobenzene (Sur)	97		82 - 121		04/12/13 04:02	1
4-Bromofluorobenzene (Sur)	100		82 - 121		04/15/13 18:18	1
1,2-Dichloroethane-d4 (Sur)	91		82 - 132		04/12/13 04:02	1
1,2-Dichloroethane-d4 (Sur)	95		82 - 132		04/15/13 18:18	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		2000	800	ug/L			04/15/13 13:35	10
Antimony	ND		100	40	ug/L			04/15/13 13:35	10
Arsenic	ND		100	20	ug/L			04/15/13 13:35	10
Barium	990		500	40	ug/L			04/15/13 13:35	10
Beryllium	ND		50	6.1	ug/L			04/15/13 13:35	10
Cadmium	ND		50	9.1	ug/L			04/15/13 13:35	10
Calcium	150000		10000	1100	ug/L			04/15/13 13:35	10
Chromium	ND		100	31	ug/L			04/15/13 13:35	10
Cobalt	ND		500	40	ug/L			04/15/13 13:35	10
Copper	ND		250	46	ug/L			04/15/13 13:35	10
Iron	22000		1000	280	ug/L			04/15/13 13:35	10

TestAmerica St. Louis

Client Sample Results

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Client Sample ID: 7

Date Collected: 04/11/13 11:38

Lab Sample ID: 160-2075-2

Matrix: Water

Date Received: 04/11/13 16:09

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		100	15	ug/L		04/15/13 13:35	04/16/13 17:57	10
Magnesium	78000		10000	1300	ug/L		04/15/13 13:35	04/16/13 17:57	10
Manganese	160		150	33	ug/L		04/15/13 13:35	04/16/13 17:57	10
Nickel	ND		400	130	ug/L		04/15/13 13:35	04/16/13 17:57	10
Potassium	17000	J	50000	17000	ug/L		04/15/13 13:35	04/16/13 17:57	10
Selenium	ND		150	27	ug/L		04/15/13 13:35	04/16/13 17:57	10
Silver	ND		100	60	ug/L		04/15/13 13:35	04/16/13 17:57	10
Sodium	180000		10000	3200	ug/L		04/15/13 13:35	04/16/13 17:57	10
Thallium	ND		200	40	ug/L		04/15/13 13:35	04/16/13 17:57	10
Vanadium	ND		500	41	ug/L		04/15/13 13:35	04/16/13 17:57	10
Zinc	ND		200	52	ug/L		04/15/13 13:35	04/16/13 17:57	10

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^ *	0.20	0.060	ug/L		04/15/13 12:47	04/15/13 19:37	1

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			(2σ+/-)	(2σ+/-)						
Radium-228	2.84		0.418	0.493	1.00	0.373	pCi/L	04/12/13 14:43	04/25/13 10:59	1
<i>Carrier</i>										
Ba Carrier	82.0		40 - 110					04/12/13 14:43	04/25/13 10:59	1
Y Carrier	88.6		40 - 110					04/12/13 14:43	04/25/13 10:59	1

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			(2σ+/-)	(2σ+/-)						
Thorium-228	-0.0398	U	0.307	0.307	1.00	0.934	pCi/L	04/15/13 05:56	04/16/13 20:03	1
Thorium-230	0.689	U	0.682	0.684	1.00	0.852	pCi/L	04/15/13 05:56	04/16/13 20:03	1
Thorium-232	-0.0514	U	0.0727	0.0729	1.00	0.672	pCi/L	04/15/13 05:56	04/16/13 20:03	1
<i>Tracer</i>										
Thorium-229	65.2		30 - 110					04/15/13 05:56	04/16/13 20:03	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			(2σ+/-)	(2σ+/-)						
Uranium-233/234	0.357	U	0.468	0.469	1.00	0.723	pCi/L	04/15/13 05:56	04/16/13 20:04	1
Uranium-235/236	-0.0476	U	0.0672	0.0674	1.00	0.622	pCi/L	04/15/13 05:56	04/16/13 20:04	1
Uranium-238	0.432	U	0.461	0.463	1.00	0.591	pCi/L	04/15/13 05:56	04/16/13 20:04	1
<i>Tracer</i>										
Uranium-232	91.0		30 - 110					04/15/13 05:56	04/16/13 20:04	1

TestAmerica St. Louis

Client Sample Results

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Client Sample ID: 8

Lab Sample ID: 160-2075-3

Matrix: Water

Date Collected: 04/11/13 13:35

Date Received: 04/11/13 16:09

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	0.29	ug/L			04/12/13 04:28	1
1,1,2,2-Tetrachloroethane	ND		5.0	0.43	ug/L			04/12/13 04:28	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.0	0.25	ug/L			04/12/13 04:28	1
1,1,2-Trichloroethane	ND		5.0	0.57	ug/L			04/12/13 04:28	1
1,1-Dichloroethane	ND		5.0	0.39	ug/L			04/12/13 04:28	1
1,1-Dichloroethene	ND *		5.0	0.37	ug/L			04/12/13 04:28	1
1,2,4-Trichlorobenzene	ND		5.0	0.55	ug/L			04/12/13 04:28	1
1,2-Dibromo-3-Chloropropane	ND		10	1.2	ug/L			04/12/13 04:28	1
1,2-Dichlorobenzene	ND		5.0	0.28	ug/L			04/12/13 04:28	1
1,2-Dichloroethane	ND		5.0	0.37	ug/L			04/12/13 04:28	1
1,2-Dichloropropane	ND		5.0	0.32	ug/L			04/12/13 04:28	1
1,3-Dichlorobenzene	ND		5.0	0.23	ug/L			04/12/13 04:28	1
1,4-Dichlorobenzene	ND		5.0	0.35	ug/L			04/12/13 04:28	1
2-Butanone (MEK)	ND		20	0.39	ug/L			04/12/13 04:28	1
2-Hexanone	ND		20	0.59	ug/L			04/12/13 04:28	1
4-Methyl-2-pentanone (MIBK)	ND		20	0.33	ug/L			04/12/13 04:28	1
Acetone	ND		20	6.7	ug/L			04/12/13 04:28	1
Benzene	1.2 J		5.0	0.25	ug/L			04/12/13 04:28	1
Bromoform	ND		5.0	0.37	ug/L			04/12/13 04:28	1
Bromomethane	ND *		10	0.40	ug/L			04/12/13 04:28	1
Carbon disulfide	ND		5.0	0.37	ug/L			04/12/13 04:28	1
Carbon tetrachloride	ND		5.0	0.36	ug/L			04/12/13 04:28	1
Chlorobenzene	ND		5.0	0.38	ug/L			04/12/13 04:28	1
Dibromochloromethane	ND		5.0	0.33	ug/L			04/12/13 04:28	1
Chloroethane	ND		10	0.38	ug/L			04/12/13 04:28	1
Chloroform	ND		5.0	0.15	ug/L			04/12/13 04:28	1
Chloromethane	ND		10	0.55	ug/L			04/12/13 04:28	1
cis-1,2-Dichloroethene	ND		5.0	0.16	ug/L			04/12/13 04:28	1
cis-1,3-Dichloropropene	ND		5.0	0.34	ug/L			04/12/13 04:28	1
Cyclohexane	ND		10	0.36	ug/L			04/12/13 04:28	1
Bromodichloromethane	ND		5.0	0.25	ug/L			04/12/13 04:28	1
Dichlorodifluoromethane	ND		10	0.45	ug/L			04/12/13 04:28	1
Ethylbenzene	ND		5.0	0.30	ug/L			04/12/13 04:28	1
1,2-Dibromoethane (EDB)	ND		5.0	0.44	ug/L			04/12/13 04:28	1
Isopropylbenzene	ND		5.0	0.26	ug/L			04/12/13 04:28	1
Methyl acetate	ND		5.0	2.3	ug/L			04/12/13 04:28	1
Methyl tert-butyl ether	ND		5.0	0.40	ug/L			04/12/13 04:28	1
Methylcyclohexane	ND		10	0.26	ug/L			04/12/13 04:28	1
Methylene Chloride	ND		5.0	1.7	ug/L			04/12/13 04:28	1
m-Xylene & p-Xylene	ND		5.0	0.57	ug/L			04/12/13 04:28	1
o-Xylene	ND		5.0	0.32	ug/L			04/12/13 04:28	1
Styrene	ND		5.0	0.35	ug/L			04/12/13 04:28	1
Tetrachloroethene	ND		5.0	0.28	ug/L			04/12/13 04:28	1
Toluene	2.4 J		5.0	1.0	ug/L			04/12/13 04:28	1
trans-1,2-Dichloroethene	ND		5.0	0.18	ug/L			04/12/13 04:28	1
trans-1,3-Dichloropropene	ND		5.0	0.35	ug/L			04/12/13 04:28	1
Trichloroethene	ND		5.0	0.29	ug/L			04/12/13 04:28	1
Trichlorofluoromethane	ND		5.0	0.22	ug/L			04/12/13 04:28	1
Vinyl chloride	ND		5.0	0.43	ug/L			04/12/13 04:28	1

TestAmerica St. Louis

Client Sample Results

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Client Sample ID: 8

Date Collected: 04/11/13 13:35
Date Received: 04/11/13 16:09

Lab Sample ID: 160-2075-3

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	ND		10	0.85	ug/L			04/12/13 04:28	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Sur)	97		85 - 115					04/12/13 04:28	1
Dibromofluoromethane (Sur)	107		85 - 119					04/12/13 04:28	1
4-Bromofluorobenzene (Sur)	93		82 - 121					04/12/13 04:28	1
1,2-Dichloroethane-d4 (Sur)	105		82 - 132					04/12/13 04:28	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		2000	800	ug/L		04/15/13 13:35	04/16/13 18:18	10
Antimony	ND		100	40	ug/L		04/15/13 13:35	04/16/13 18:18	10
Arsenic	ND		100	20	ug/L		04/15/13 13:35	04/16/13 18:18	10
Barium	2200		500	40	ug/L		04/15/13 13:35	04/16/13 18:18	10
Beryllium	ND		50	6.1	ug/L		04/15/13 13:35	04/16/13 18:18	10
Cadmium	ND		50	9.1	ug/L		04/15/13 13:35	04/16/13 18:18	10
Calcium	290000		10000	1100	ug/L		04/15/13 13:35	04/16/13 18:18	10
Chromium	ND		100	31	ug/L		04/15/13 13:35	04/16/13 18:18	10
Cobalt	ND		500	40	ug/L		04/15/13 13:35	04/16/13 18:18	10
Copper	ND		250	46	ug/L		04/15/13 13:35	04/16/13 18:18	10
Iron	35000		1000	280	ug/L		04/15/13 13:35	04/16/13 18:18	10
Lead	17 J		100	15	ug/L		04/15/13 13:35	04/16/13 18:18	10
Magnesium	85000		10000	1300	ug/L		04/15/13 13:35	04/16/13 18:18	10
Manganese	680		150	33	ug/L		04/15/13 13:35	04/16/13 18:18	10
Nickel	ND		400	130	ug/L		04/15/13 13:35	04/16/13 18:18	10
Potassium	26000 J		50000	17000	ug/L		04/15/13 13:35	04/16/13 18:18	10
Selenium	ND		150	27	ug/L		04/15/13 13:35	04/16/13 18:18	10
Silver	ND		100	60	ug/L		04/15/13 13:35	04/16/13 18:18	10
Sodium	340000		10000	3200	ug/L		04/15/13 13:35	04/16/13 18:18	10
Thallium	ND		200	40	ug/L		04/15/13 13:35	04/16/13 18:18	10
Vanadium	ND		500	41	ug/L		04/15/13 13:35	04/16/13 18:18	10
Zinc	ND		200	52	ug/L		04/15/13 13:35	04/16/13 18:18	10

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^ *	0.20	0.060	ug/L		04/15/13 12:47	04/15/13 19:39	1

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			(2σ+/-)	(2σ+/-)						
Radium-228	6.73		0.527	0.813	1.00	0.320	pCi/L	04/12/13 14:43	04/25/13 11:00	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	102		40 - 110					04/12/13 14:43	04/25/13 11:00	1
Y Carrier	91.2		40 - 110					04/12/13 14:43	04/25/13 11:00	1

TestAmerica St. Louis

Client Sample Results

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Client Sample ID: 8

Lab Sample ID: 160-2075-3

Matrix: Water

Date Collected: 04/11/13 13:35
Date Received: 04/11/13 16:09

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			(2σ+/-)	(2σ+/-)						
Thorium-228	0.204	U	0.364	0.365	1.00	0.624	pCi/L	04/15/13 05:56	04/16/13 20:03	1
Thorium-230	0.637	U	0.627	0.630	1.00	0.782	pCi/L	04/15/13 05:56	04/16/13 20:03	1
Thorium-232	-0.00265	U	0.203	0.203	1.00	0.679	pCi/L	04/15/13 05:56	04/16/13 20:03	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Thorium-229	72.7		30 - 110					04/15/13 05:56	04/16/13 20:03	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
Uranium-233/234	0.0806	U	0.426	0.426	1.00	0.904	pCi/L	04/15/13 05:56	04/16/13 20:04	1
Uranium-235/236	0.154	U	0.361	0.362	1.00	0.718	pCi/L	04/15/13 05:56	04/16/13 20:04	1
Uranium-238	-0.0557	U	0.0643	0.0645	1.00	0.534	pCi/L	04/15/13 05:56	04/16/13 20:04	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	92.8		30 - 110					04/15/13 05:56	04/16/13 20:04	1

Client Sample ID: 9

Lab Sample ID: 160-2075-4

Matrix: Water

Date Collected: 04/11/13 14:25
Date Received: 04/11/13 16:09

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	0.29	ug/L			04/12/13 04:53	1
1,1,2,2-Tetrachloroethane	ND		5.0	0.43	ug/L			04/12/13 04:53	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.0	0.25	ug/L			04/12/13 04:53	1
1,1,2-Trichloroethane	ND		5.0	0.57	ug/L			04/12/13 04:53	1
1,1-Dichloroethane	ND		5.0	0.39	ug/L			04/12/13 04:53	1
1,1-Dichloroethene	ND *		5.0	0.37	ug/L			04/12/13 04:53	1
1,2,4-Trichlorobenzene	ND		5.0	0.55	ug/L			04/12/13 04:53	1
1,2-Dibromo-3-Chloropropane	ND		10	1.2	ug/L			04/12/13 04:53	1
1,2-Dichlorobenzene	ND		5.0	0.28	ug/L			04/12/13 04:53	1
1,2-Dichloroethane	ND		5.0	0.37	ug/L			04/12/13 04:53	1
1,2-Dichloropropane	ND		5.0	0.32	ug/L			04/12/13 04:53	1
1,3-Dichlorobenzene	ND		5.0	0.23	ug/L			04/12/13 04:53	1
1,4-Dichlorobenzene	ND		5.0	0.35	ug/L			04/12/13 04:53	1
2-Butanone (MEK)	ND		20	0.39	ug/L			04/12/13 04:53	1
2-Hexanone	ND		20	0.59	ug/L			04/12/13 04:53	1
4-Methyl-2-pentanone (MIBK)	ND		20	0.33	ug/L			04/12/13 04:53	1
Acetone	ND		20	6.7	ug/L			04/12/13 04:53	1
Benzene	0.57 J		5.0	0.25	ug/L			04/12/13 04:53	1
Bromoform	ND		5.0	0.37	ug/L			04/12/13 04:53	1
Bromomethane	ND *		10	0.40	ug/L			04/12/13 04:53	1
Carbon disulfide	ND		5.0	0.37	ug/L			04/12/13 04:53	1
Carbon tetrachloride	ND		5.0	0.36	ug/L			04/12/13 04:53	1
Chlorobenzene	1.6 J		5.0	0.38	ug/L			04/12/13 04:53	1
Dibromochloromethane	ND		5.0	0.33	ug/L			04/12/13 04:53	1

TestAmerica St. Louis

Client Sample Results

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Client Sample ID: 9

Date Collected: 04/11/13 14:25

Date Received: 04/11/13 16:09

Lab Sample ID: 160-2075-4

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloroethane	ND		10	0.38	ug/L		04/12/13 04:53		1
Chloroform	ND		5.0	0.15	ug/L		04/12/13 04:53		1
Chloromethane	ND		10	0.55	ug/L		04/12/13 04:53		1
cis-1,2-Dichloroethene	ND		5.0	0.16	ug/L		04/12/13 04:53		1
cis-1,3-Dichloropropene	ND		5.0	0.34	ug/L		04/12/13 04:53		1
Cyclohexane	ND		10	0.36	ug/L		04/12/13 04:53		1
Bromodichloromethane	ND		5.0	0.25	ug/L		04/12/13 04:53		1
Dichlorodifluoromethane	ND		10	0.45	ug/L		04/12/13 04:53		1
Ethylbenzene	ND		5.0	0.30	ug/L		04/12/13 04:53		1
1,2-Dibromoethane (EDB)	ND		5.0	0.44	ug/L		04/12/13 04:53		1
Isopropylbenzene	ND		5.0	0.26	ug/L		04/12/13 04:53		1
Methyl acetate	ND		5.0	2.3	ug/L		04/12/13 04:53		1
Methyl tert-butyl ether	0.59	J	5.0	0.40	ug/L		04/12/13 04:53		1
Methylicyclohexane	ND		10	0.26	ug/L		04/12/13 04:53		1
Methylene Chloride	ND		5.0	1.7	ug/L		04/12/13 04:53		1
m-Xylene & p-Xylene	ND		5.0	0.57	ug/L		04/12/13 04:53		1
o-Xylene	ND		5.0	0.32	ug/L		04/12/13 04:53		1
Styrene	ND		5.0	0.35	ug/L		04/12/13 04:53		1
Tetrachloroethene	ND		5.0	0.28	ug/L		04/12/13 04:53		1
Toluene	ND		5.0	1.0	ug/L		04/12/13 04:53		1
trans-1,2-Dichloroethene	ND		5.0	0.18	ug/L		04/12/13 04:53		1
trans-1,3-Dichloropropene	ND		5.0	0.35	ug/L		04/12/13 04:53		1
Trichloroethene	ND		5.0	0.29	ug/L		04/12/13 04:53		1
Trichlorofluoromethane	ND		5.0	0.22	ug/L		04/12/13 04:53		1
Vinyl chloride	ND		5.0	0.43	ug/L		04/12/13 04:53		1
Xylenes, Total	ND		10	0.85	ug/L		04/12/13 04:53		1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	97		85 - 115		04/12/13 04:53	1
Dibromofluoromethane (Surr)	108		85 - 119		04/12/13 04:53	1
4-Bromofluorobenzene (Surr)	93		82 - 121		04/12/13 04:53	1
1,2-Dichloroethane-d4 (Surr)	101		82 - 132		04/12/13 04:53	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		2000	800	ug/L		04/15/13 13:35	04/16/13 18:22	10
Antimony	ND		100	40	ug/L		04/15/13 13:35	04/16/13 18:22	10
Arsenic	ND		100	20	ug/L		04/15/13 13:35	04/16/13 18:22	10
Barium	2300		500	40	ug/L		04/15/13 13:35	04/16/13 18:22	10
Beryllium	ND		50	6.1	ug/L		04/15/13 13:35	04/16/13 18:22	10
Cadmium	ND		50	9.1	ug/L		04/15/13 13:35	04/16/13 18:22	10
Calcium	300000		10000	1100	ug/L		04/15/13 13:35	04/16/13 18:22	10
Chromium	ND		100	31	ug/L		04/15/13 13:35	04/16/13 18:22	10
Cobalt	ND		500	40	ug/L		04/15/13 13:35	04/16/13 18:22	10
Copper	ND		250	46	ug/L		04/15/13 13:35	04/16/13 18:22	10
Iron	32000		1000	280	ug/L		04/15/13 13:35	04/16/13 18:22	10
Lead	ND		100	15	ug/L		04/15/13 13:35	04/16/13 18:22	10
Magnesium	84000		10000	1300	ug/L		04/15/13 13:35	04/16/13 18:22	10
Manganese	510		150	33	ug/L		04/15/13 13:35	04/16/13 18:22	10
Nickel	ND		400	130	ug/L		04/15/13 13:35	04/16/13 18:22	10

TestAmerica St. Louis

Client Sample Results

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Client Sample ID: 9

Lab Sample ID: 160-2075-4

Matrix: Water

Date Collected: 04/11/13 14:25
Date Received: 04/11/13 16:09

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium	28000	J	50000	17000	ug/L		04/15/13 13:35	04/16/13 18:22	10
Selenium	ND		150	27	ug/L		04/15/13 13:35	04/16/13 18:22	10
Silver	ND		100	60	ug/L		04/15/13 13:35	04/16/13 18:22	10
Sodium	390000		10000	3200	ug/L		04/15/13 13:35	04/16/13 18:22	10
Thallium	ND		200	40	ug/L		04/15/13 13:35	04/16/13 18:22	10
Vanadium	ND		500	41	ug/L		04/15/13 13:35	04/16/13 18:22	10
Zinc	ND		200	52	ug/L		04/15/13 13:35	04/16/13 18:22	10

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.066	J ^ B *	0.20	0.060	ug/L		04/15/13 12:47	04/15/13 19:41	1

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			(2σ+/-)	(2σ+/-)						
Radium-228	5.19		0.475	0.674	1.00	0.351	pCi/L	04/12/13 14:43	04/25/13 11:00	1
Carrier										
Ba Carrier	105		40 - 110					04/12/13 14:43	04/25/13 11:00	1
Y Carrier	92.7		40 - 110					04/12/13 14:43	04/25/13 11:00	1

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			(2σ+/-)	(2σ+/-)						
Thorium-228	0.525	U G	0.655	0.657	1.00	1.02	pCi/L	04/15/13 05:56	04/16/13 20:03	1
Thorium-230	0.734	U	0.693	0.695	1.00	0.912	pCi/L	04/15/13 05:56	04/16/13 20:03	1
Thorium-232	-0.0596	U	0.270	0.270	1.00	0.846	pCi/L	04/15/13 05:56	04/16/13 20:03	1
Tracer										
Thorium-229	75.7		30 - 110					04/15/13 05:56	04/16/13 20:03	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			(2σ+/-)	(2σ+/-)						
Uranium-233/234	0.390	U	0.436	0.438	1.00	0.593	pCi/L	04/15/13 05:56	04/16/13 20:04	1
Uranium-235/236	-0.0224	U	0.0448	0.0448	1.00	0.508	pCi/L	04/15/13 05:56	04/16/13 20:04	1
Uranium-238	0.0957	U	0.191	0.192	1.00	0.259	pCi/L	04/15/13 05:56	04/16/13 20:04	1
Tracer										
Uranium-232	96.0		30 - 110					04/15/13 05:56	04/16/13 20:04	1

Client Sample ID: 10

Lab Sample ID: 160-2075-5

Matrix: Water

Date Collected: 04/11/13 14:49
Date Received: 04/11/13 16:09

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	0.29	ug/L		04/12/13 05:18		1

TestAmerica St. Louis

Client Sample Results

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Client Sample ID: 10

Date Collected: 04/11/13 14:49

Date Received: 04/11/13 16:09

Lab Sample ID: 160-2075-5

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	ND		5.0	0.43	ug/L			04/12/13 05:18	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.0	0.25	ug/L			04/12/13 05:18	1
1,1,2-Trichloroethane	ND		5.0	0.57	ug/L			04/12/13 05:18	1
1,1-Dichloroethane	ND		5.0	0.39	ug/L			04/12/13 05:18	1
1,1-Dichloroethene	ND	*	5.0	0.37	ug/L			04/12/13 05:18	1
1,2,4-Trichlorobenzene	ND		5.0	0.55	ug/L			04/12/13 05:18	1
1,2-Dibromo-3-Chloropropane	ND		10	1.2	ug/L			04/12/13 05:18	1
1,2-Dichlorobenzene	ND		5.0	0.28	ug/L			04/12/13 05:18	1
1,2-Dichloroethane	ND		5.0	0.37	ug/L			04/12/13 05:18	1
1,2-Dichloropropane	ND		5.0	0.32	ug/L			04/12/13 05:18	1
1,3-Dichlorobenzene	ND		5.0	0.23	ug/L			04/12/13 05:18	1
1,4-Dichlorobenzene	ND		5.0	0.35	ug/L			04/12/13 05:18	1
2-Butanone (MEK)	ND		20	0.39	ug/L			04/12/13 05:18	1
2-Hexanone	ND		20	0.59	ug/L			04/12/13 05:18	1
4-Methyl-2-pentanone (MIBK)	ND		20	0.33	ug/L			04/12/13 05:18	1
Acetone	ND		20	6.7	ug/L			04/12/13 05:18	1
Benzene	0.42	J	5.0	0.25	ug/L			04/12/13 05:18	1
Bromoform	ND		5.0	0.37	ug/L			04/12/13 05:18	1
Bromomethane	ND	*	10	0.40	ug/L			04/12/13 05:18	1
Carbon disulfide	ND		5.0	0.37	ug/L			04/12/13 05:18	1
Carbon tetrachloride	ND		5.0	0.36	ug/L			04/12/13 05:18	1
Chlorobenzene	60		5.0	0.38	ug/L			04/12/13 05:18	1
Dibromochloromethane	ND		5.0	0.33	ug/L			04/12/13 05:18	1
Chloroethane	ND		10	0.38	ug/L			04/12/13 05:18	1
Chloroform	ND		5.0	0.15	ug/L			04/12/13 05:18	1
Chloromethane	ND		10	0.55	ug/L			04/12/13 05:18	1
cis-1,2-Dichloroethene	ND		5.0	0.16	ug/L			04/12/13 05:18	1
cis-1,3-Dichloropropene	ND		5.0	0.34	ug/L			04/12/13 05:18	1
Cyclohexane	ND		10	0.36	ug/L			04/12/13 05:18	1
Bromodichloromethane	ND		5.0	0.25	ug/L			04/12/13 05:18	1
Dichlorodifluoromethane	ND		10	0.45	ug/L			04/12/13 05:18	1
Ethylbenzene	ND		5.0	0.30	ug/L			04/12/13 05:18	1
1,2-Dibromoethane (EDB)	ND		5.0	0.44	ug/L			04/12/13 05:18	1
Isopropylbenzene	ND		5.0	0.26	ug/L			04/12/13 05:18	1
Methyl acetate	ND		5.0	2.3	ug/L			04/12/13 05:18	1
Methyl tert-butyl ether	ND		5.0	0.40	ug/L			04/12/13 05:18	1
Methylcyclohexane	ND		10	0.26	ug/L			04/12/13 05:18	1
Methylene Chloride	ND		5.0	1.7	ug/L			04/12/13 05:18	1
m-Xylene & p-Xylene	ND		5.0	0.57	ug/L			04/12/13 05:18	1
o-Xylene	ND		5.0	0.32	ug/L			04/12/13 05:18	1
Styrene	ND		5.0	0.35	ug/L			04/12/13 05:18	1
Tetrachloroethene	ND		5.0	0.28	ug/L			04/12/13 05:18	1
Toluene	ND		5.0	1.0	ug/L			04/12/13 05:18	1
trans-1,2-Dichloroethene	ND		5.0	0.18	ug/L			04/12/13 05:18	1
trans-1,3-Dichloropropene	ND		5.0	0.35	ug/L			04/12/13 05:18	1
Trichloroethene	ND		5.0	0.29	ug/L			04/12/13 05:18	1
Trichlorofluoromethane	ND		5.0	0.22	ug/L			04/12/13 05:18	1
Vinyl chloride	ND		5.0	0.43	ug/L			04/12/13 05:18	1
Xylenes, Total	ND		10	0.85	ug/L			04/12/13 05:18	1

TestAmerica St. Louis

Client Sample Results

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Client Sample ID: 10

Date Collected: 04/11/13 14:49
Date Received: 04/11/13 16:09

Lab Sample ID: 160-2075-5

Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Sur)	99		85 - 115		04/12/13 05:18	1
Dibromofluoromethane (Sur)	109		85 - 119		04/12/13 05:18	1
4-Bromofluorobenzene (Sur)	99		82 - 121		04/12/13 05:18	1
1,2-Dichloroethane-d4 (Sur)	112		82 - 132		04/12/13 05:18	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	53000		2000	800	ug/L		04/15/13 13:35	04/16/13 18:26	10
Antimony	48	J	100	40	ug/L		04/15/13 13:35	04/16/13 18:26	10
Arsenic	72	J	100	20	ug/L		04/15/13 13:35	04/16/13 18:26	10
Barium	6300		500	40	ug/L		04/15/13 13:35	04/16/13 18:26	10
Beryllium	ND		50	6.1	ug/L		04/15/13 13:35	04/16/13 18:26	10
Cadmium	ND		50	9.1	ug/L		04/15/13 13:35	04/16/13 18:26	10
Calcium	890000		20000	2100	ug/L		04/15/13 13:35	04/17/13 15:26	20
Chromium	63	J	100	31	ug/L		04/15/13 13:35	04/16/13 18:26	10
Cobalt	150	J	500	40	ug/L		04/15/13 13:35	04/16/13 18:26	10
Copper	78	J	250	46	ug/L		04/15/13 13:35	04/16/13 18:26	10
Iron	290000		1000	280	ug/L		04/15/13 13:35	04/16/13 18:26	10
Lead	170		100	15	ug/L		04/15/13 13:35	04/16/13 18:26	10
Magnesium	140000		10000	1300	ug/L		04/15/13 13:35	04/16/13 18:26	10
Manganese	8800		150	33	ug/L		04/15/13 13:35	04/16/13 18:26	10
Nickel	350	J	400	130	ug/L		04/15/13 13:35	04/16/13 18:26	10
Potassium	17000	J	50000	17000	ug/L		04/15/13 13:35	04/16/13 18:26	10
Selenium	ND		150	27	ug/L		04/15/13 13:35	04/16/13 18:26	10
Silver	ND		100	60	ug/L		04/15/13 13:35	04/16/13 18:26	10
Sodium	160000		10000	3200	ug/L		04/15/13 13:35	04/16/13 18:26	10
Thallium	ND		200	40	ug/L		04/15/13 13:35	04/16/13 18:26	10
Vanadium	190	J	500	41	ug/L		04/15/13 13:35	04/16/13 18:26	10
Zinc	640	B	200	52	ug/L		04/15/13 13:35	04/16/13 18:26	10

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.16	J ^ B *	0.20	0.060	ug/L		04/15/13 12:47	04/15/13 19:42	1

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			(2σ+/-)	(2σ+/-)						
Radium-228	3.90	G	0.927	0.994	1.00	1.13	pCi/L	04/12/13 14:43	04/25/13 11:00	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	61.9		40 - 110					04/12/13 14:43	04/25/13 11:00	1
Y Carrier	91.2		40 - 110					04/12/13 14:43	04/25/13 11:00	1

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			(2σ+/-)	(2σ+/-)						
Thorium-228	3.09	G	1.46	1.48	1.00	1.31	pCi/L	04/15/13 05:56	04/16/13 20:03	1
Thorium-230	6.53		1.98	2.05	1.00	0.838	pCi/L	04/15/13 05:56	04/16/13 20:03	1
Thorium-232	2.71	G	1.32	1.34	1.00	1.04	pCi/L	04/15/13 05:56	04/16/13 20:03	1

TestAmerica St. Louis

Client Sample Results

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Client Sample ID: 10

Date Collected: 04/11/13 14:49
Date Received: 04/11/13 16:09

Lab Sample ID: 160-2075-5
Matrix: Water

Tracer	% Yield	Qualifier	Limits		Prepared	Analyzed	Dil Fac
Thorium-229	62.8		30 - 110		04/15/13 05:56	04/16/13 20:03	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			(2σ+/-)	(2σ+/-)						
Uranium-233/234	1.17		0.736	0.743	1.00	0.652	pCi/L	04/15/13 05:56	04/16/13 20:04	1
Uranium-235/236	0.263	U	0.371	0.372	1.00	0.355	pCi/L	04/15/13 05:56	04/16/13 20:04	1
Uranium-238	1.61		0.846	0.857	1.00	0.612	pCi/L	04/15/13 05:56	04/16/13 20:04	1
Tracer	% Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	88.2		30 - 110					04/15/13 05:56	04/16/13 20:04	1

Client Sample ID: 11

Date Collected: 04/11/13 15:33
Date Received: 04/11/13 16:09

Lab Sample ID: 160-2075-6

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	0.29	ug/L		04/12/13 05:43		1
1,1,2,2-Tetrachloroethane	ND		5.0	0.43	ug/L		04/12/13 05:43		1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.0	0.25	ug/L		04/12/13 05:43		1
1,1,2-Trichloroethane	ND		5.0	0.57	ug/L		04/12/13 05:43		1
1,1-Dichloroethane	0.41	J	5.0	0.39	ug/L		04/12/13 05:43		1
1,1-Dichloroethene	ND	*	5.0	0.37	ug/L		04/12/13 05:43		1
1,2,4-Trichlorobenzene	ND		5.0	0.55	ug/L		04/12/13 05:43		1
1,2-Dibromo-3-Chloropropane	ND		10	1.2	ug/L		04/12/13 05:43		1
1,2-Dichlorobenzene	1.9	J	5.0	0.28	ug/L		04/12/13 05:43		1
1,2-Dichloroethane	ND		5.0	0.37	ug/L		04/12/13 05:43		1
1,2-Dichloropropane	ND		5.0	0.32	ug/L		04/12/13 05:43		1
1,3-Dichlorobenzene	ND		5.0	0.23	ug/L		04/12/13 05:43		1
1,4-Dichlorobenzene	10		5.0	0.35	ug/L		04/12/13 05:43		1
2-Butanone (MEK)	ND		20	0.39	ug/L		04/12/13 05:43		1
2-Hexanone	ND		20	0.59	ug/L		04/12/13 05:43		1
4-Methyl-2-pentanone (MIBK)	ND		20	0.33	ug/L		04/12/13 05:43		1
Acetone	ND		20	6.7	ug/L		04/12/13 05:43		1
Benzene	4.9	J	5.0	0.25	ug/L		04/12/13 05:43		1
Bromoform	ND		5.0	0.37	ug/L		04/12/13 05:43		1
Bromomethane	ND	*	10	0.40	ug/L		04/12/13 05:43		1
Carbon disulfide	ND		5.0	0.37	ug/L		04/12/13 05:43		1
Carbon tetrachloride	ND		5.0	0.36	ug/L		04/12/13 05:43		1
Chlorobenzene	3.4	J	5.0	0.38	ug/L		04/12/13 05:43		1
Dibromochloromethane	ND		5.0	0.33	ug/L		04/12/13 05:43		1
Chloroethane	ND		10	0.38	ug/L		04/12/13 05:43		1
Chloroform	ND		5.0	0.15	ug/L		04/12/13 05:43		1
Chloromethane	ND		10	0.55	ug/L		04/12/13 05:43		1
cis-1,2-Dichloroethene	ND		5.0	0.16	ug/L		04/12/13 05:43		1
cis-1,3-Dichloropropene	ND		5.0	0.34	ug/L		04/12/13 05:43		1
Cyclohexane	ND		10	0.36	ug/L		04/12/13 05:43		1
Bromodichloromethane	ND		5.0	0.25	ug/L		04/12/13 05:43		1
Dichlorodifluoromethane	2.7	J	10	0.45	ug/L		04/12/13 05:43		1

TestAmerica St. Louis

Client Sample Results

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Client Sample ID: 11

Date Collected: 04/11/13 15:33

Date Received: 04/11/13 16:09

Lab Sample ID: 160-2075-6

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		5.0	0.30	ug/L			04/12/13 05:43	1
1,2-Dibromoethane (EDB)	ND		5.0	0.44	ug/L			04/12/13 05:43	1
Isopropylbenzene	1.9 J		5.0	0.26	ug/L			04/12/13 05:43	1
Methyl acetate	ND		5.0	2.3	ug/L			04/12/13 05:43	1
Methyl tert-butyl ether	0.67 J		5.0	0.40	ug/L			04/12/13 05:43	1
Methylcyclohexane	0.28 J		10	0.26	ug/L			04/12/13 05:43	1
Methylene Chloride	ND		5.0	1.7	ug/L			04/12/13 05:43	1
m-Xylene & p-Xylene	14		5.0	0.57	ug/L			04/12/13 05:43	1
o-Xylene	7.7		5.0	0.32	ug/L			04/12/13 05:43	1
Styrene	ND		5.0	0.35	ug/L			04/12/13 05:43	1
Tetrachloroethene	ND		5.0	0.28	ug/L			04/12/13 05:43	1
Toluene	5.0		5.0	1.0	ug/L			04/12/13 05:43	1
trans-1,2-Dichloroethene	ND		5.0	0.18	ug/L			04/12/13 05:43	1
trans-1,3-Dichloropropene	ND		5.0	0.35	ug/L			04/12/13 05:43	1
Trichloroethene	ND		5.0	0.29	ug/L			04/12/13 05:43	1
Trichlorofluoromethane	ND		5.0	0.22	ug/L			04/12/13 05:43	1
Vinyl chloride	ND		5.0	0.43	ug/L			04/12/13 05:43	1
Xylenes, Total	22		10	0.85	ug/L			04/12/13 05:43	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surrogate)	98		85 - 115					04/12/13 05:43	1
Dibromofluoromethane (Surrogate)	107		85 - 119					04/12/13 05:43	1
4-Bromofluorobenzene (Surrogate)	95		82 - 121					04/12/13 05:43	1
1,2-Dichloroethane-d4 (Surrogate)	109		82 - 132					04/12/13 05:43	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		2000	800	ug/L		04/15/13 13:35	04/16/13 18:29	10
Antimony	ND		100	40	ug/L		04/15/13 13:35	04/16/13 18:29	10
Arsenic	ND		100	20	ug/L		04/15/13 13:35	04/16/13 18:29	10
Barium	470 J		500	40	ug/L		04/15/13 13:35	04/16/13 18:29	10
Beryllium	ND		50	6.1	ug/L		04/15/13 13:35	04/16/13 18:29	10
Cadmium	ND		50	9.1	ug/L		04/15/13 13:35	04/16/13 18:29	10
Calcium	72000		10000	1100	ug/L		04/15/13 13:35	04/16/13 18:29	10
Chromium	ND		100	31	ug/L		04/15/13 13:35	04/16/13 18:29	10
Cobalt	ND		500	40	ug/L		04/15/13 13:35	04/16/13 18:29	10
Copper	ND		250	46	ug/L		04/15/13 13:35	04/16/13 18:29	10
Iron	20000		1000	280	ug/L		04/15/13 13:35	04/16/13 18:29	10
Lead	ND		100	15	ug/L		04/15/13 13:35	04/16/13 18:29	10
Magnesium	60000		10000	1300	ug/L		04/15/13 13:35	04/16/13 18:29	10
Manganese	260		150	33	ug/L		04/15/13 13:35	04/16/13 18:29	10
Nickel	ND		400	130	ug/L		04/15/13 13:35	04/16/13 18:29	10
Potassium	190000		50000	17000	ug/L		04/15/13 13:35	04/16/13 18:29	10
Selenium	ND		150	27	ug/L		04/15/13 13:35	04/16/13 18:29	10
Silver	ND		100	60	ug/L		04/15/13 13:35	04/16/13 18:29	10
Sodium	410000		10000	3200	ug/L		04/15/13 13:35	04/16/13 18:29	10
Thallium	ND		200	40	ug/L		04/15/13 13:35	04/16/13 18:29	10
Vanadium	47 J		500	41	ug/L		04/15/13 13:35	04/16/13 18:29	10
Zinc	78 J B		200	52	ug/L		04/15/13 13:35	04/16/13 18:29	10

TestAmerica St. Louis

Client Sample Results

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Client Sample ID: 11

Date Collected: 04/11/13 15:33
Date Received: 04/11/13 16:09

Lab Sample ID: 160-2075-6

Matrix: Water

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.12	J ^ B *	0.20	0.060	ug/L		04/15/13 12:47	04/15/13 19:48	1

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			(2σ+/-)	(2σ+/-)						
Radium-228	0.418	U	0.290	0.293	1.00	0.450	pCi/L	04/12/13 14:43	04/25/13 11:00	1
Carrier										
Ba Carrier	85.5		40 - 110					04/12/13 14:43	04/25/13 11:00	1
Y Carrier	84.9		40 - 110					04/12/13 14:43	04/25/13 11:00	1

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			(2σ+/-)	(2σ+/-)						
Thorium-228	0.163	U G	0.685	0.685	1.00	1.43	pCi/L	04/15/13 05:56	04/16/13 20:03	1
Thorium-230	1.36		0.971	0.977	1.00	0.866	pCi/L	04/15/13 05:56	04/16/13 20:03	1
Thorium-232	-0.0609	U	0.0854	0.0856	1.00	0.786	pCi/L	04/15/13 05:56	04/16/13 20:03	1
Tracer										
Thorium-229	56.4		30 - 110					04/15/13 05:56	04/16/13 20:03	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			(2σ+/-)	(2σ+/-)						
Uranium-233/234	-0.0684	U	0.228	0.228	1.00	0.733	pCi/L	04/15/13 05:56	04/16/13 20:04	1
Uranium-235/236	-0.0232	U	0.0465	0.0465	1.00	0.528	pCi/L	04/15/13 05:56	04/16/13 20:04	1
Uranium-238	0.106	U	0.293	0.293	1.00	0.614	pCi/L	04/15/13 05:56	04/16/13 20:04	1
Tracer										
Uranium-232	93.7		30 - 110					04/15/13 05:56	04/16/13 20:04	1

TestAmerica St. Louis

QC Sample Results

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 160-46184/2

Matrix: Water

Analysis Batch: 46184

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	0.29	ug/L			04/11/13 23:27	1
1,1,2,2-Tetrachloroethane	ND		5.0	0.43	ug/L			04/11/13 23:27	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.0	0.25	ug/L			04/11/13 23:27	1
1,1,2-Trichloroethane	ND		5.0	0.57	ug/L			04/11/13 23:27	1
1,1-Dichloroethane	ND		5.0	0.39	ug/L			04/11/13 23:27	1
1,1-Dichloroethene	ND		5.0	0.37	ug/L			04/11/13 23:27	1
1,2,4-Trichlorobenzene	ND		5.0	0.55	ug/L			04/11/13 23:27	1
1,2-Dibromo-3-Chloropropane	ND		10	1.2	ug/L			04/11/13 23:27	1
1,2-Dichlorobenzene	ND		5.0	0.28	ug/L			04/11/13 23:27	1
1,2-Dichloroethane	ND		5.0	0.37	ug/L			04/11/13 23:27	1
1,2-Dichloropropane	ND		5.0	0.32	ug/L			04/11/13 23:27	1
1,3-Dichlorobenzene	ND		5.0	0.23	ug/L			04/11/13 23:27	1
1,4-Dichlorobenzene	ND		5.0	0.35	ug/L			04/11/13 23:27	1
2-Butanone (MEK)	ND		20	0.39	ug/L			04/11/13 23:27	1
2-Hexanone	ND		20	0.59	ug/L			04/11/13 23:27	1
4-Methyl-2-pentanone (MIBK)	ND		20	0.33	ug/L			04/11/13 23:27	1
Acetone	ND		20	6.7	ug/L			04/11/13 23:27	1
Benzene	ND		5.0	0.25	ug/L			04/11/13 23:27	1
Bromoform	ND		5.0	0.37	ug/L			04/11/13 23:27	1
Bromomethane	ND		10	0.40	ug/L			04/11/13 23:27	1
Carbon disulfide	ND		5.0	0.37	ug/L			04/11/13 23:27	1
Carbon tetrachloride	ND		5.0	0.36	ug/L			04/11/13 23:27	1
Chlorobenzene	ND		5.0	0.38	ug/L			04/11/13 23:27	1
Dibromochloromethane	ND		5.0	0.33	ug/L			04/11/13 23:27	1
Chloroethane	ND		10	0.38	ug/L			04/11/13 23:27	1
Chloroform	ND		5.0	0.15	ug/L			04/11/13 23:27	1
Chloromethane	ND		10	0.55	ug/L			04/11/13 23:27	1
cis-1,2-Dichloroethene	ND		5.0	0.16	ug/L			04/11/13 23:27	1
cis-1,3-Dichloropropene	ND		5.0	0.34	ug/L			04/11/13 23:27	1
Cyclohexane	ND		10	0.36	ug/L			04/11/13 23:27	1
Bromodichloromethane	ND		5.0	0.25	ug/L			04/11/13 23:27	1
Dichlorodifluoromethane	ND		10	0.45	ug/L			04/11/13 23:27	1
Ethylbenzene	ND		5.0	0.30	ug/L			04/11/13 23:27	1
1,2-Dibromoethane (EDB)	ND		5.0	0.44	ug/L			04/11/13 23:27	1
Isopropylbenzene	ND		5.0	0.26	ug/L			04/11/13 23:27	1
Methyl acetate	ND		5.0	2.3	ug/L			04/11/13 23:27	1
Methyl tert-butyl ether	ND		5.0	0.40	ug/L			04/11/13 23:27	1
Methylcyclohexane	ND		10	0.26	ug/L			04/11/13 23:27	1
Methylene Chloride	ND		5.0	1.7	ug/L			04/11/13 23:27	1
m-Xylene & p-Xylene	ND		5.0	0.57	ug/L			04/11/13 23:27	1
o-Xylene	ND		5.0	0.32	ug/L			04/11/13 23:27	1
Styrene	ND		5.0	0.35	ug/L			04/11/13 23:27	1
Tetrachloroethene	ND		5.0	0.28	ug/L			04/11/13 23:27	1
Toluene	ND		5.0	1.0	ug/L			04/11/13 23:27	1
trans-1,2-Dichloroethene	ND		5.0	0.18	ug/L			04/11/13 23:27	1
trans-1,3-Dichloropropene	ND		5.0	0.35	ug/L			04/11/13 23:27	1
Trichloroethene	ND		5.0	0.29	ug/L			04/11/13 23:27	1
Trichlorofluoromethane	ND		5.0	0.22	ug/L			04/11/13 23:27	1

TestAmerica St. Louis

QC Sample Results

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 160-46184/2

Matrix: Water

Analysis Batch: 46184

Analyte	MB	MB					D	Prepared	Analyzed	Dil Fac	
	Result	Qualifier	RL	MDL	Unit						
Vinyl chloride	ND		5.0	0.43	ug/L				04/11/13 23:27	1	
Xylenes, Total	ND		10	0.85	ug/L				04/11/13 23:27	1	
Surrogate	MB	MB									
	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac		
Toluene-d8 (Sur)	97		85 - 115					04/11/13 23:27	1		
Dibromofluoromethane (Sum)	104		85 - 119					04/11/13 23:27	1		
4-Bromofluorobenzene (Sum)	103		82 - 121					04/11/13 23:27	1		
1,2-Dichloroethane-d4 (Sur)	110		82 - 132					04/11/13 23:27	1		

Lab Sample ID: LCS 160-46184/4

Matrix: Water

Analysis Batch: 46184

Analyte	Spike	LCS	LCS					%Rec.	Limits	
	Added	Result	Qualifier	Unit	D	%Rec				
1,1,1-Trichloroethane	50.0	45.1		ug/L	90	85 - 115				
1,1,2,2-Tetrachloroethane	50.0	46.6		ug/L	93	84 - 115				
1,1,2-Trichloroethane	50.0	47.2		ug/L	94	85 - 115				
1,1-Dichloroethane	50.0	47.6		ug/L	95	85 - 115				
1,1-Dichloroethene	50.0	41.2 *		ug/L	82	85 - 118				
1,2,4-Trichlorobenzene	50.0	44.0		ug/L	88	75 - 124				
1,2-Dibromo-3-Chloropropane	50.0	41.1		ug/L	82	71 - 123				
1,2-Dichlorobenzene	50.0	45.0		ug/L	90	85 - 115				
1,2-Dichloroethane	50.0	47.0		ug/L	94	79 - 122				
1,2-Dichloropropane	50.0	46.6		ug/L	93	85 - 115				
1,3-Dichlorobenzene	50.0	46.4		ug/L	93	85 - 115				
1,4-Dichlorobenzene	50.0	47.3		ug/L	95	85 - 115				
2-Butanone (MEK)	50.0	43.6		ug/L	87	71 - 123				
2-Hexanone	50.0	56.4		ug/L	113	66 - 121				
4-Methyl-2-pentanone (MIBK)	50.0	53.2		ug/L	106	74 - 123				
Acetone	50.0	43.2		ug/L	86	51 - 140				
Benzene	50.0	46.5		ug/L	93	85 - 115				
Bromoform	50.0	47.8		ug/L	96	85 - 115				
Bromomethane	50.0	33.5 *		ug/L	67	70 - 135				
Carbon disulfide	50.0	42.9		ug/L	86	85 - 123				
Carbon tetrachloride	50.0	45.6		ug/L	91	85 - 118				
Chlorobenzene	50.0	47.2		ug/L	94	85 - 115				
Dibromochloromethane	50.0	46.5		ug/L	93	85 - 115				
Chloroethane	50.0	37.5		ug/L	75	75 - 125				
Chloroform	50.0	46.2		ug/L	92	85 - 115				
Chloromethane	50.0	46.2		ug/L	92	73 - 132				
cis-1,2-Dichloroethene	50.0	44.7		ug/L	89	85 - 115				
cis-1,3-Dichloropropene	50.0	47.3		ug/L	95	85 - 127				
Cyclohexane	50.0	46.3		ug/L	93	73 - 115				
Bromodichloromethane	50.0	46.1		ug/L	92	85 - 117				
Dichlorodifluoromethane	50.0	40.6		ug/L	81	62 - 115				
Ethylbenzene	50.0	48.6		ug/L	97	85 - 115				
1,2-Dibromoethane (EDB)	50.0	46.6		ug/L	93	85 - 115				
Isopropylbenzene	50.0	50.8		ug/L	102	85 - 124				

TestAmerica St. Louis

QC Sample Results

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 160-46184/4

Matrix: Water

Analysis Batch: 46184

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec.
	Added	Result	Qualifier				Limits
Methyl acetate	50.0	45.1		ug/L		90	73 . 135
Methyl tert-butyl ether	50.0	44.0		ug/L		88	73 . 115
Methylcyclohexane	50.0	47.4		ug/L		95	85 . 134
Methylene Chloride	50.0	43.6		ug/L		87	84 . 115
m-Xylene & p-Xylene	100	98.3		ug/L		98	85 . 115
o-Xylene	50.0	48.6		ug/L		97	85 . 115
Styrene	50.0	51.0		ug/L		102	85 . 115
Tetrachloroethene	50.0	46.0		ug/L		92	85 . 115
Toluene	50.0	50.0		ug/L		100	85 . 115
trans-1,2-Dichloroethene	50.0	42.7		ug/L		85	85 . 115
trans-1,3-Dichloropropene	50.0	50.7		ug/L		101	85 . 123
Trichloroethene	50.0	46.0		ug/L		92	85 . 115
Trichlorofluoromethane	50.0	44.6		ug/L		89	85 . 116
Vinyl chloride	50.0	42.6		ug/L		85	68 . 133
Xylenes, Total	150	147		ug/L		98	

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
Toluene-d8 (Sur)	102		85 . 115
Dibromofluoromethane (Sur)	96		85 . 119
4-Bromofluorobenzene (Sur)	95		82 . 121
1,2-Dichloroethane-d4 (Sur)	98		82 . 132

Lab Sample ID: LCSD 160-46184/5

Matrix: Water

Analysis Batch: 46184

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike	LCSD	LCSD	Unit	D	%Rec	%Rec.	RPD	RPD
	Added	Result	Qualifier				Limits		
1,1,1-Trichloroethane	50.0	50.1		ug/L		100	85 . 115	11	20
1,1,2,2-Tetrachloroethane	50.0	48.2		ug/L		96	84 . 115	3	20
1,1,2-Trichloroethane	50.0	48.0		ug/L		96	85 . 115	2	20
1,1-Dichloroethane	50.0	49.4		ug/L		99	85 . 115	4	20
1,1-Dichloroethene	50.0	47.8		ug/L		96	85 . 118	15	20
1,2,4-Trichlorobenzene	50.0	49.6		ug/L		99	75 . 124	12	20
1,2-Dibromo-3-Chloropropane	50.0	45.8		ug/L		92	71 . 123	11	20
1,2-Dichlorobenzene	50.0	48.8		ug/L		98	85 . 115	8	20
1,2-Dichloroethane	50.0	48.2		ug/L		96	79 . 122	3	20
1,2-Dichloropropane	50.0	49.5		ug/L		99	85 . 115	6	20
1,3-Dichlorobenzene	50.0	48.5		ug/L		97	85 . 115	4	20
1,4-Dichlorobenzene	50.0	48.8		ug/L		98	85 . 115	3	20
2-Butanone (MEK)	50.0	49.5		ug/L		99	71 . 123	13	20
2-Hexanone	50.0	56.9		ug/L		114	66 . 121	1	20
4-Methyl-2-pentanone (MIBK)	50.0	55.0		ug/L		110	74 . 123	3	20
Acetone	50.0	40.7		ug/L		81	51 . 140	6	20
Benzene	50.0	50.1		ug/L		100	85 . 115	7	20
Bromoform	50.0	47.6		ug/L		95	85 . 115	0	20
Bromomethane	50.0	38.7		ug/L		77	70 . 135	14	20
Carbon disulfide	50.0	49.8		ug/L		100	85 . 123	15	20
Carbon tetrachloride	50.0	51.6		ug/L		103	85 . 118	12	20

TestAmerica St. Louis

QC Sample Results

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 160-46184/5

Matrix: Water

Analysis Batch: 46184

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike	LCSD	LCSD	Unit	D	%Rec	Limits	RPD	RPD Limit
	Added	Result	Qualifier						
Chlorobenzene	50.0	49.2		ug/L		98	85 - 115	4	20
Dibromochloromethane	50.0	48.3		ug/L		97	85 - 115	4	20
Chloroethane	50.0	41.5		ug/L		83	75 - 125	10	20
Chloroform	50.0	49.3		ug/L		99	85 - 115	6	20
Chloromethane	50.0	54.6		ug/L		109	73 - 132	17	20
cis-1,2-Dichloroethene	50.0	48.8		ug/L		98	85 - 115	9	20
cis-1,3-Dichloropropene	50.0	48.9		ug/L		98	85 - 127	3	20
Cyclohexane	50.0	53.1		ug/L		106	73 - 115	14	20
Bromodichloromethane	50.0	48.4		ug/L		97	85 - 117	5	20
Dichlorodifluoromethane	50.0	48.4		ug/L		97	62 - 115	18	20
Ethylbenzene	50.0	52.1		ug/L		104	85 - 115	7	20
1,2-Dibromoethane (EDB)	50.0	48.4		ug/L		97	85 - 115	4	20
Isopropylbenzene	50.0	54.0		ug/L		108	85 - 124	6	20
Methyl acetate	50.0	49.5		ug/L		99	73 - 135	9	20
Methyl tert-butyl ether	50.0	47.0		ug/L		94	73 - 115	7	20
Methylcyclohexane	50.0	53.0		ug/L		106	85 - 134	11	20
Methylene Chloride	50.0	48.8		ug/L		98	84 - 115	11	20
m-Xylene & p-Xylene	100	106		ug/L		106	85 - 115	8	20
o-Xylene	50.0	52.8		ug/L		106	85 - 115	8	20
Styrene	50.0	52.1		ug/L		104	85 - 115	2	20
Tetrachloroethene	50.0	48.5		ug/L		97	85 - 115	5	20
Toluene	50.0	51.7		ug/L		103	85 - 115	3	20
trans-1,2-Dichloroethene	50.0	47.1		ug/L		94	85 - 115	10	20
trans-1,3-Dichloropropene	50.0	49.3		ug/L		99	85 - 123	3	20
Trichloroethene	50.0	46.6		ug/L		93	85 - 115	1	20
Trichlorofluoromethane	50.0	51.2		ug/L		102	85 - 116	14	20
Vinyl chloride	50.0	49.5		ug/L		99	68 - 133	15	20
Xylenes, Total	150	159		ug/L		106		8	20

LCSD LCSD

Surrogate	%Recovery	Qualifier	Limits
Toluene-d8 (Sur)	105		85 - 115
Dibromofluoromethane (Sur)	103		85 - 119
4-Bromofluorobenzene (Sur)	94		82 - 121
1,2-Dichloroethane-d4 (Sur)	101		82 - 132

Lab Sample ID: MB 160-46185/2

Matrix: Water

Analysis Batch: 46185

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1-Trichloroethane	ND		5.0	0.29	ug/L			04/15/13 11:37	1
1,1,2,2-Tetrachloroethane	ND		5.0	0.43	ug/L			04/15/13 11:37	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.0	0.25	ug/L			04/15/13 11:37	1
1,1,2-Trichloroethane	ND		5.0	0.57	ug/L			04/15/13 11:37	1
1,1-Dichloroethane	ND		5.0	0.39	ug/L			04/15/13 11:37	1
1,1-Dichloroethene	ND		5.0	0.37	ug/L			04/15/13 11:37	1
1,2,4-Trichlorobenzene	0.884 J		5.0	0.55	ug/L			04/15/13 11:37	1
1,2-Dibromo-3-Chloropropane	ND		10	1.2	ug/L			04/15/13 11:37	1

TestAmerica St. Louis

QC Sample Results

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 160-46185/2

Client Sample ID: Method Blank
Prep Type: Total/NA

Matrix: Water

Analysis Batch: 46185

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,2-Dichlorobenzene	0.412	J	5.0	0.28	ug/L			04/15/13 11:37	1
1,2-Dichloroethane	ND		5.0	0.37	ug/L			04/15/13 11:37	1
1,2-Dichloropropane	ND		5.0	0.32	ug/L			04/15/13 11:37	1
1,3-Dichlorobenzene	0.380	J	5.0	0.23	ug/L			04/15/13 11:37	1
1,4-Dichlorobenzene	ND		5.0	0.35	ug/L			04/15/13 11:37	1
2-Butanone (MEK)	ND		20	0.39	ug/L			04/15/13 11:37	1
2-Hexanone	ND		20	0.59	ug/L			04/15/13 11:37	1
4-Methyl-2-pentanone (MIBK)	ND		20	0.33	ug/L			04/15/13 11:37	1
Acetone	ND		20	6.7	ug/L			04/15/13 11:37	1
Benzene	ND		5.0	0.25	ug/L			04/15/13 11:37	1
Bromoform	ND		5.0	0.37	ug/L			04/15/13 11:37	1
Bromomethane	ND		10	0.40	ug/L			04/15/13 11:37	1
Carbon disulfide	ND		5.0	0.37	ug/L			04/15/13 11:37	1
Carbon tetrachloride	ND		5.0	0.36	ug/L			04/15/13 11:37	1
Chlorobenzene	ND		5.0	0.38	ug/L			04/15/13 11:37	1
Dibromochloromethane	ND		5.0	0.33	ug/L			04/15/13 11:37	1
Chloroethane	ND		10	0.38	ug/L			04/15/13 11:37	1
Chloroform	ND		5.0	0.15	ug/L			04/15/13 11:37	1
Chloromethane	ND		10	0.55	ug/L			04/15/13 11:37	1
cis-1,2-Dichloroethene	ND		5.0	0.16	ug/L			04/15/13 11:37	1
cis-1,3-Dichloropropene	ND		5.0	0.34	ug/L			04/15/13 11:37	1
Cyclohexane	ND		10	0.36	ug/L			04/15/13 11:37	1
Bromodichloromethane	ND		5.0	0.25	ug/L			04/15/13 11:37	1
Dichlorodifluoromethane	ND		10	0.45	ug/L			04/15/13 11:37	1
Ethylbenzene	ND		5.0	0.30	ug/L			04/15/13 11:37	1
1,2-Dibromoethane (EDB)	ND		5.0	0.44	ug/L			04/15/13 11:37	1
Isopropylbenzene	ND		5.0	0.26	ug/L			04/15/13 11:37	1
Methyl acetate	ND		5.0	2.3	ug/L			04/15/13 11:37	1
Methyl tert-butyl ether	ND		5.0	0.40	ug/L			04/15/13 11:37	1
Methylcyclohexane	ND		10	0.26	ug/L			04/15/13 11:37	1
Methylene Chloride	ND		5.0	1.7	ug/L			04/15/13 11:37	1
m-Xylene & p-Xylene	ND		5.0	0.57	ug/L			04/15/13 11:37	1
o-Xylene	ND		5.0	0.32	ug/L			04/15/13 11:37	1
Styrene	ND		5.0	0.35	ug/L			04/15/13 11:37	1
Tetrachloroethene	ND		5.0	0.28	ug/L			04/15/13 11:37	1
Toluene	ND		5.0	1.0	ug/L			04/15/13 11:37	1
trans-1,2-Dichloroethene	ND		5.0	0.18	ug/L			04/15/13 11:37	1
trans-1,3-Dichloropropene	ND		5.0	0.35	ug/L			04/15/13 11:37	1
Trichloroethene	ND		5.0	0.29	ug/L			04/15/13 11:37	1
Trichlorofluoromethane	ND		5.0	0.22	ug/L			04/15/13 11:37	1
Vinyl chloride	ND		5.0	0.43	ug/L			04/15/13 11:37	1
Xylenes, Total	ND		10	0.85	ug/L			04/15/13 11:37	1

Surrogate	MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Sur)	101		85 - 115			1
Dibromofluoromethane (Sur)	101		85 - 119			1
4-Bromofluorobenzene (Sur)	100		82 - 121			1
1,2-Dichloroethane-d4 (Sur)	101		82 - 132			1

TestAmerica St. Louis

QC Sample Results

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 160-46185/4

Matrix: Water

Analysis Batch: 46185

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec.
	Added	Result	Qualifier				
1,1,1-Trichloroethane	50.0	46.3		ug/L	93	85 . 115	
1,1,2,2-Tetrachloroethane	50.0	49.1		ug/L	98	84 . 115	
1,1,2-Trichloroethane	50.0	49.5		ug/L	99	85 . 115	
1,1-Dichloroethane	50.0	49.0		ug/L	98	85 . 115	
1,1-Dichloroethene	50.0	44.2		ug/L	88	85 . 118	
1,2,4-Trichlorobenzene	50.0	46.7		ug/L	93	75 . 124	
1,2-Dibromo-3-Chloropropane	50.0	42.3		ug/L	85	71 . 123	
1,2-Dichlorobenzene	50.0	49.7		ug/L	99	85 . 115	
1,2-Dichloroethane	50.0	48.6		ug/L	97	79 . 122	
1,2-Dichloropropane	50.0	47.3		ug/L	95	85 . 115	
1,3-Dichlorobenzene	50.0	49.0		ug/L	98	85 . 115	
1,4-Dichlorobenzene	50.0	49.7		ug/L	99	85 . 115	
2-Butanone (MEK)	50.0	49.7		ug/L	99	71 . 123	
2-Hexanone	50.0	54.1		ug/L	108	66 . 121	
4-Methyl-2-pentanone (MIBK)	50.0	51.1		ug/L	102	74 . 123	
Acetone	50.0	41.3		ug/L	83	51 . 140	
Benzene	50.0	47.8		ug/L	96	85 . 115	
Bromoform	50.0	48.8		ug/L	98	85 . 115	
Bromomethane	50.0	35.9		ug/L	72	70 . 135	
Carbon disulfide	50.0	44.8		ug/L	90	85 . 123	
Carbon tetrachloride	50.0	47.6		ug/L	95	85 . 118	
Chlorobenzene	50.0	50.6		ug/L	101	85 . 115	
Dibromochloromethane	50.0	47.7		ug/L	95	85 . 115	
Chloroethane	50.0	38.9		ug/L	78	75 . 125	
Chloroform	50.0	47.8		ug/L	96	85 . 115	
Chloromethane	50.0	48.5		ug/L	97	73 . 132	
cis-1,2-Dichloroethene	50.0	46.0		ug/L	92	85 . 115	
cis-1,3-Dichloropropene	50.0	46.6		ug/L	93	85 . 127	
Cyclohexane	50.0	47.6		ug/L	95	73 . 115	
Bromodichloromethane	50.0	47.6		ug/L	95	85 . 117	
Dichlorodifluoromethane	50.0	47.0		ug/L	94	62 . 115	
Ethylbenzene	50.0	51.9		ug/L	104	85 . 115	
1,2-Dibromoethane (EDB)	50.0	49.4		ug/L	99	85 . 115	
Isopropylbenzene	50.0	54.1		ug/L	108	85 . 124	
Methyl acetate	50.0	50.2		ug/L	100	73 . 135	
Methyl tert-butyl ether	50.0	45.2		ug/L	90	73 . 115	
Methylcyclohexane	50.0	49.7		ug/L	99	85 . 134	
Methylene Chloride	50.0	45.7		ug/L	91	84 . 115	
m-Xylene & p-Xylene	100	107		ug/L	107	85 . 115	
o-Xylene	50.0	50.5		ug/L	101	85 . 115	
Styrene	50.0	51.9		ug/L	104	85 . 115	
Tetrachloroethene	50.0	49.6		ug/L	99	85 . 115	
Toluene	50.0	52.5		ug/L	105	85 . 115	
trans-1,2-Dichloroethene	50.0	44.9		ug/L	90	85 . 115	
trans-1,3-Dichloropropene	50.0	50.8		ug/L	102	85 . 123	
Trichloroethene	50.0	46.9		ug/L	94	85 . 115	
Trichlorofluoromethane	50.0	48.0		ug/L	96	85 . 116	
Vinyl chloride	50.0	44.7		ug/L	89	68 . 133	

TestAmerica St. Louis

QC Sample Results

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 160-46185/4

Matrix: Water

Analysis Batch: 46185

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte		Spike	LCS	LCS	Unit	D	%Rec	%Rec.
		Added	Result	Qualifier				
Xylenes, Total		150	158		ug/L		105	
Surrogate								
Toluene-d8 (Surrogate)	103		85 - 115					
Dibromofluoromethane (Surrogate)	98		85 - 119					
4-Bromofluorobenzene (Surrogate)	92		82 - 121					
1,2-Dichloroethane-d4 (Surrogate)	98		82 - 132					

Lab Sample ID: LCSD 160-46185/5

Matrix: Water

Analysis Batch: 46185

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte		Spike	LCSD	LCSD	Unit	D	%Rec	%Rec.	RPD	Limit
		Added	Result	Qualifier						
1,1,1-Trichloroethane		50.0	53.4		ug/L		107	85 - 115	14	20
1,1,2,2-Tetrachloroethane		50.0	52.0		ug/L		104	84 - 115	6	20
1,1,2-Trichloroethane		50.0	49.5		ug/L		99	85 - 115	0	20
1,1-Dichloroethane		50.0	53.6		ug/L		107	85 - 115	9	20
1,1-Dichloroethene		50.0	49.5		ug/L		99	85 - 118	11	20
1,2,4-Trichlorobenzene		50.0	53.0		ug/L		106	75 - 124	13	20
1,2-Dibromo-3-Chloropropane		50.0	49.2		ug/L		98	71 - 123	15	20
1,2-Dichlorobenzene		50.0	52.3		ug/L		105	85 - 115	5	20
1,2-Dichloroethane		50.0	50.5		ug/L		101	79 - 122	4	20
1,2-Dichloropropane		50.0	51.2		ug/L		102	85 - 115	8	20
1,3-Dichlorobenzene		50.0	53.0		ug/L		106	85 - 115	8	20
1,4-Dichlorobenzene		50.0	53.2		ug/L		106	85 - 115	7	20
2-Butanone (MEK)		50.0	43.3		ug/L		87	71 - 123	14	20
2-Hexanone		50.0	54.3		ug/L		109	66 - 121	0	20
4-Methyl-2-pentanone (MIBK)		50.0	57.3		ug/L		115	74 - 123	11	20
Acetone		50.0	58.7 *		ug/L		117	51 - 140	35	20
Benzene		50.0	52.1		ug/L		104	85 - 115	9	20
Bromoform		50.0	49.5		ug/L		99	85 - 115	1	20
Bromomethane		50.0	41.4		ug/L		83	70 - 135	14	20
Carbon disulfide		50.0	52.2		ug/L		104	85 - 123	15	20
Carbon tetrachloride		50.0	52.1		ug/L		104	85 - 118	9	20
Chlorobenzene		50.0	51.2		ug/L		102	85 - 115	1	20
Dibromochloromethane		50.0	50.9		ug/L		102	85 - 115	6	20
Chloroethane		50.0	44.1		ug/L		88	75 - 125	13	20
Chloroform		50.0	51.7		ug/L		103	85 - 115	8	20
Chloromethane		50.0	59.0		ug/L		118	73 - 132	19	20
cis-1,2-Dichloroethene		50.0	49.8		ug/L		100	85 - 115	8	20
cis-1,3-Dichloropropene		50.0	47.1		ug/L		94	85 - 127	1	20
Cyclohexane		50.0	55.3		ug/L		111	73 - 115	15	20
Bromodichloromethane		50.0	50.3		ug/L		101	85 - 117	6	20
Dichlorodifluoromethane		50.0	55.4		ug/L		111	62 - 115	16	20
Ethylbenzene		50.0	53.3		ug/L		107	85 - 115	3	20
1,2-Dibromoethane (EDB)		50.0	49.5		ug/L		99	85 - 115	0	20
Isopropylbenzene		50.0	55.9		ug/L		112	85 - 124	3	20
Methyl acetate		50.0	54.7		ug/L		109	73 - 135	9	20

TestAmerica St. Louis

QC Sample Results

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 160-46185/5				Client Sample ID: Lab Control Sample Dup						
				Prep Type: Total/NA						
Matrix: Water										
Analysis Batch: 46185										
Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit	RPD
Methyl tert-butyl ether	50.0	53.1		ug/L		106	73 - 115	16	20	
Methylcyclohexane	50.0	55.5		ug/L		111	85 - 134	11	20	
Methylene Chloride	50.0	52.7		ug/L		105	84 - 115	14	20	
m-Xylene & p-Xylene	100	113		ug/L		113	85 - 115	5	20	
o-Xylene	50.0	54.5		ug/L		109	85 - 115	8	20	
Styrene	50.0	56.4		ug/L		113	85 - 115	8	20	
Tetrachloroethene	50.0	50.0		ug/L		100	85 - 115	1	20	
Toluene	50.0	53.8		ug/L		108	85 - 115	3	20	
trans-1,2-Dichloroethene	50.0	49.2		ug/L		98	85 - 115	9	20	
trans-1,3-Dichloropropene	50.0	51.6		ug/L		103	85 - 123	2	20	
Trichloroethene	50.0	48.7		ug/L		97	85 - 115	4	20	
Trichlorofluoromethane	50.0	53.4		ug/L		107	85 - 116	11	20	
Vinyl chloride	50.0	51.5		ug/L		103	68 - 133	14	20	
Xylenes, Total	150	168		ug/L		112		6	20	
Surrogate	LCSD %Recovery	LCSD Qualifier	LCSD Limits							
Toluene-d8 (Surr)	105		85 - 115							
Dibromofluoromethane (Sum)	101		85 - 119							
4-Bromofluorobenzene (Sum)	92		82 - 121							
1,2-Dichloroethane-d4 (Surr)	100		82 - 132							

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 160-46024/1-A				Client Sample ID: Method Blank						
				Prep Type: Total/NA						
Analysis Batch: 46401				Prep Batch: 46024						
Analyte	MB Result	MB Qualifier	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND			200	80	ug/L		04/15/13 13:35	04/16/13 17:46	1
Antimony	ND			10	4.0	ug/L		04/15/13 13:35	04/16/13 17:46	1
Arsenic	ND			10	2.0	ug/L		04/15/13 13:35	04/16/13 17:46	1
Barium	ND			50	4.0	ug/L		04/15/13 13:35	04/16/13 17:46	1
Beryllium	ND			5.0	0.61	ug/L		04/15/13 13:35	04/16/13 17:46	1
Cadmium	ND			5.0	0.91	ug/L		04/15/13 13:35	04/16/13 17:46	1
Calcium	ND			1000	110	ug/L		04/15/13 13:35	04/16/13 17:46	1
Chromium	ND			10	3.1	ug/L		04/15/13 13:35	04/16/13 17:46	1
Cobalt	ND			50	4.0	ug/L		04/15/13 13:35	04/16/13 17:46	1
Copper	ND			25	4.6	ug/L		04/15/13 13:35	04/16/13 17:46	1
Iron	ND			100	28	ug/L		04/15/13 13:35	04/16/13 17:46	1
Lead	ND			10	1.5	ug/L		04/15/13 13:35	04/16/13 17:46	1
Magnesium	ND			1000	130	ug/L		04/15/13 13:35	04/16/13 17:46	1
Manganese	ND			15	3.3	ug/L		04/15/13 13:35	04/16/13 17:46	1
Nickel	ND			40	13	ug/L		04/15/13 13:35	04/16/13 17:46	1
Potassium	ND			5000	1700	ug/L		04/15/13 13:35	04/16/13 17:46	1
Selenium	ND			15	2.7	ug/L		04/15/13 13:35	04/16/13 17:46	1
Silver	ND			10	6.0	ug/L		04/15/13 13:35	04/16/13 17:46	1
Sodium	ND			1000	320	ug/L		04/15/13 13:35	04/16/13 17:46	1
Thallium	ND			20	4.0	ug/L		04/15/13 13:35	04/16/13 17:46	1

TestAmerica St. Louis

QC Sample Results

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: MB 160-46024/1-A

Matrix: Water

Analysis Batch: 46401

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 46024

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Vanadium	ND		50	4.1	ug/L		04/15/13 13:35	04/16/13 17:46	1
Zinc	11.8	J	20	5.2	ug/L		04/15/13 13:35	04/16/13 17:46	1

Lab Sample ID: LCS 160-46024/2-A

Matrix: Water

Analysis Batch: 46401

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 46024

Analyte	Spike		LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
	Added							
Aluminum	10000		10300		ug/L		103	80 - 120
Antimony	500		542		ug/L		108	80 - 120
Arsenic	1000		1040		ug/L		104	80 - 120
Barium	1000		1030		ug/L		103	80 - 120
Beryllium	1000		1030		ug/L		103	80 - 120
Cadmium	1000		1090		ug/L		109	80 - 120
Calcium	10000		11100		ug/L		111	80 - 120
Chromium	1000		1100		ug/L		110	80 - 120
Cobalt	1000		1150		ug/L		115	80 - 120
Copper	1000		1110		ug/L		111	80 - 120
Iron	10000		10400		ug/L		104	80 - 120
Lead	1000		1130		ug/L		113	80 - 120
Magnesium	10000		10300		ug/L		103	80 - 120
Manganese	1000		1050		ug/L		105	80 - 120
Nickel	1000		1130		ug/L		113	80 - 120
Potassium	10000		9880		ug/L		99	80 - 120
Selenium	1000		1080		ug/L		108	80 - 120
Silver	100		101		ug/L		101	80 - 120
Sodium	10000		9980		ug/L		100	80 - 120
Thallium	200		238		ug/L		119	80 - 120
Vanadium	1000		1040		ug/L		104	80 - 120
Zinc	1000		1100		ug/L		110	80 - 120

Lab Sample ID: 160-2075-2 MS

Matrix: Water

Analysis Batch: 46401

Client Sample ID: 7

Prep Type: Total/NA

Prep Batch: 46024

Analyte	Sample Result	Sample Qualifier	Spike		MS Result	MS Qualifier	Unit	D	%Rec	Limits
			Added							
Aluminum	ND		10000		10300		ug/L		103	75 - 125
Antimony	ND		500		555		ug/L		111	75 - 125
Arsenic	ND		1000		1070		ug/L		107	75 - 125
Barium	990		1000		1990		ug/L		100	75 - 125
Beryllium	ND		1000		1030		ug/L		103	75 - 125
Cadmium	ND		1000		1100		ug/L		110	75 - 125
Calcium	150000		10000		159000	4	ug/L		119	75 - 125
Chromium	ND		1000		1130		ug/L		113	75 - 125
Cobalt	ND		1000		1170		ug/L		117	75 - 125
Copper	ND		1000		1110		ug/L		111	75 - 125
Iron	22000		10000		32500		ug/L		105	75 - 125
Lead	ND		1000		1140		ug/L		114	75 - 125
Magnesium	78000		10000		88000	4	ug/L		102	75 - 125

TestAmerica St. Louis

QC Sample Results

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 160-2075-2 MS										Client Sample ID: 7		
Matrix: Water										Prep Type: Total/NA		
Analysis Batch: 46401										Prep Batch: 46024		
Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec		%Rec.		Limits
Manganese	160		1000	1200		ug/L		105		75 - 125		
Nickel	ND		1000	1210		ug/L		121		75 - 125		
Potassium	17000 J		10000	27300 J		ug/L		102		75 - 125		
Selenium	ND		1000	969		ug/L		97		75 - 125		
Silver	ND		100	99.0 J		ug/L		99		75 - 125		
Sodium	180000		10000	192000 4		ug/L		96		75 - 125		
Thallium	ND		200	244		ug/L		122		75 - 125		
Vanadium	ND		1000	1080		ug/L		108		75 - 125		
Zinc	ND		1000	1140		ug/L		114		75 - 125		

Lab Sample ID: 160-2075-2 MSD

Lab Sample ID: 160-2075-2 MSD										Client Sample ID: 7		
Matrix: Water										Prep Type: Total/NA		
Analysis Batch: 46401										Prep Batch: 46024		
Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec		%Rec.		RPD
Aluminum	ND		10000	10300		ug/L		103		75 - 125		1 20
Antimony	ND		500	542		ug/L		108		75 - 125	2	20
Arsenic	ND		1000	1070		ug/L		107		75 - 125	0	20
Barium	990		1000	2010		ug/L		101		75 - 125	1	20
Beryllium	ND		1000	1030		ug/L		103		75 - 125	0	20
Cadmium	ND		1000	1100		ug/L		110		75 - 125	0	20
Calcium	150000		10000	159000 4		ug/L		123		75 - 125	0	20
Chromium	ND		1000	1130		ug/L		113		75 - 125	0	20
Cobalt	ND		1000	1170		ug/L		117		75 - 125	1	20
Copper	ND		1000	1110		ug/L		111		75 - 125	0	20
Iron	22000		10000	32600		ug/L		105		75 - 125	0	20
Lead	ND		1000	1150		ug/L		115		75 - 125	1	20
Magnesium	78000		10000	88400 4		ug/L		106		75 - 125	0	20
Manganese	160		1000	1200		ug/L		104		75 - 125	0	20
Nickel	ND		1000	1210		ug/L		121		75 - 125	0	20
Potassium	17000 J		10000	27600 J		ug/L		105		75 - 125	1	20
Selenium	ND		1000	990		ug/L		99		75 - 125	2	20
Silver	ND		100	103		ug/L		103		75 - 125	4	20
Sodium	180000		10000	193000 4		ug/L		108		75 - 125	1	20
Thallium	ND		200	253 F		ug/L		127		75 - 125	4	20
Vanadium	ND		1000	1060		ug/L		106		75 - 125	2	20
Zinc	ND		1000	1150		ug/L		115		75 - 125	0	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 160-46002/1-A										Client Sample ID: Method Blank		
Matrix: Water										Prep Type: Total/NA		
Analysis Batch: 46210										Prep Batch: 46002		
Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac			
Mercury	0.0791	J ^	0.20	0.060	ug/L		04/15/13 12:47	04/15/13 19:26	1			

TestAmerica St. Louis

QC Sample Results

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 160-46002/2-A

Matrix: Water

Analysis Batch: 46210

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 46002

Analyte	Spike Added	LCS		Unit	D	%Rec	%Rec.
		Result	Qualifier				
Mercury	1.00	1.28	^ *	ug/L	128	80 . 120	

Lab Sample ID: 160-2075-1 MS

Matrix: Water

Analysis Batch: 46210

Client Sample ID: 6

Prep Type: Total/NA

Prep Batch: 46002

Analyte	Sample Result	Sample Qualifier	Spike Added	MS	MS	Unit	D	%Rec	%Rec.
	Result	Qualifier	Added	Result	Qualifier				
Mercury	0.14	J ^ B *	1.00	1.53	^ F	ug/L	139	80 . 120	

Lab Sample ID: 160-2075-1 MSD

Matrix: Water

Analysis Batch: 46210

Client Sample ID: 6

Prep Type: Total/NA

Prep Batch: 46002

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier							
Mercury	0.14	J ^ B *	1.00	1.52	^ F	ug/L	138	80 . 120		0	20	

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-45826/1-A

Client Sample ID: Method Blank

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 47803

Prep Batch: 45826

Analyte	MB		Count	Total		RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert.	(2σ+/-)	(2σ+/-)						
Radium-228	0.1301	U	0.188	0.188	0.188	1.00	0.312	pCi/L	04/12/13 14:43	04/25/13 10:59	1

Carrier **MB** **MB**

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	96.5		40 . 110	04/12/13 14:43	04/25/13 10:59	1
Y Carrier	92.7		40 . 110	04/12/13 14:43	04/25/13 10:59	1

Lab Sample ID: LCS 160-45826/2-A

Client Sample ID: Lab Control Sample

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 47803

Prep Batch: 45826

Analyte	Spike Added	LCS		Uncert.	(2σ+/-)	RL	MDC	Unit	%Rec	%Rec.
		Result	Qual							
Radium-228	4.38	3.985		0.567	0.567	1.00	0.324	pCi/L	91	56 . 140

Carrier **LCS** **LCS**

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	97.6		40 . 110	04/12/13 14:43	04/25/13 10:59	1
Y Carrier	88.2		40 . 110	04/12/13 14:43	04/25/13 10:59	1

TestAmerica St. Louis

QC Sample Results

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: 160-2075-3 DU										Client Sample ID: 8			
Matrix: Water										Prep Type: Total/NA			
Analysis Batch: 47803										Prep Batch: 45826			
Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	Limit			
Radium-228	6.73		7.492		0.890	1.00	0.325	pCi/L	0.45	1			
Carrier DU DU													
Carrier	% Yield	Qualifier	Limits										
Ba Carrier	105		40 - 110										
Y Carrier	86.4		40 - 110										

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Lab Sample ID: MB 160-45940/1-A										Client Sample ID: Method Blank			
Matrix: Water										Prep Type: Total/NA			
Analysis Batch: 46320										Prep Batch: 45940			
Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac	
Thorium-228	-0.01431	U			0.0723	0.0723	1.00	0.195	pCi/L	04/15/13 05:56	04/16/13 20:02	1	
Thorium-230	0.2908				0.165	0.167	1.00	0.103	pCi/L	04/15/13 05:56	04/16/13 20:02	1	
Thorium-232	0.04702	U			0.0812	0.0813	1.00	0.141	pCi/L	04/15/13 05:56	04/16/13 20:02	1	
Tracer MB MB													
Tracer	% Yield	Qualifier	Limits							Prepared	Analyzed	Dil Fac	
Thorium-229	78.5		30 - 110							04/15/13 05:56	04/16/13 20:02	1	

Lab Sample ID: LCS 160-45940/2-A										Client Sample ID: Lab Control Sample			
Matrix: Water										Prep Type: Total/NA			
Analysis Batch: 46337										Prep Batch: 45940			
Analyte	Sample Spike Added	Sample LCS Result	Sample LCS Qual	DU	Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	% Rec.	Limits		
Thorium-230		8.64	9.990		1.27	1.27	1.00	0.223	pCi/L	116	81 - 125		
Tracer LCS LCS													
Tracer	% Yield	Qualifier	Limits							04/15/13 05:56	04/16/13 20:02	1	
Thorium-229	79.0		30 - 110										

Lab Sample ID: 160-2075-1 DU										Client Sample ID: 6			
Matrix: Water										Prep Type: Total/NA			
Analysis Batch: 46358										Prep Batch: 45940			
Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	Limit			
Thorium-228	2.28	G	2.809	G	1.57	1.00	1.50	pCi/L	0.18	1			
Thorium-230	2.56		3.963	G	1.77	1.00	1.11	pCi/L	0.46	1			
Thorium-232	2.30		3.032	G	1.55	1.00	1.17	pCi/L	0.27	1			
Tracer DU DU													
Tracer	% Yield	Qualifier	Limits							04/15/13 05:56	04/16/13 20:02	1	
Thorium-229	49.6		30 - 110										

TestAmerica St. Louis

QC Sample Results

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-45941/1-A

Matrix: Water

Analysis Batch: 46310

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 45941

Analyte	Result	MB Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			(2σ+/-)	(2σ+/-)						
Uranium-233/234	0.02115	U	0.0688	0.0688	1.00	0.143	pCi/L	04/15/13 05:56	04/16/13 20:04	1
Uranium-235/236	-0.004386	U	0.00877	0.00878	1.00	0.0996	pCi/L	04/15/13 05:56	04/16/13 20:04	1
Uranium-238	0.01172	U	0.0388	0.0388	1.00	0.0919	pCi/L	04/15/13 05:56	04/16/13 20:04	1
Tracer	MB %Yield	MB Qualifier	MB Limits					Prepared	Analyzed	Dil Fac
Uranium-232	97.3		30 - 110					04/15/13 05:56	04/16/13 20:04	1

Lab Sample ID: LCS 160-45941/2-A

Matrix: Water

Analysis Batch: 46311

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 45941

Analyte	Spike Added	Spike	LCS	LCS	Total	RL	MDC	Unit	%Rec	Limits
		Added	Result	Qual	Uncert. (2σ+/-)					
Uranium-233/234	13.1	13.1	11.33		1.33	1.00	0.125	pCi/L	87	84 - 120
Uranium-238		13.6	12.78		1.46	1.00	0.111	pCi/L	94	83 - 121
Tracer	LCS %Yield	LCS Qualifier	Limits							
Uranium-232	93.6		30 - 110							

Lab Sample ID: 160-2075-1 DU

Matrix: Water

Analysis Batch: 46313

Client Sample ID: 6

Prep Type: Total/NA

Prep Batch: 45941

Analyte	Sample	Sample	DU	DU	Total	RL	MDC	Unit	RER	Limit
	Result	Qual	Result	Qual	Uncert. (2σ+/-)					
Uranium-233/234	3.98		6.273		1.81	1.00	0.584	pCi/L	0.70	1
Uranium-235/236	-0.0828	U	0.2688	U	0.424	1.00	0.632	pCi/L	0.68	1
Uranium-238	3.98		3.502		1.34	1.00	0.642	pCi/L	0.17	1
Tracer	DU %Yield	DU Qualifier	DU Limits							
Uranium-232	76.1		30 - 110							

TestAmerica St. Louis

QC Association Summary

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

GC/MS VOA

Analysis Batch: 46184

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-2075-1	6	Total/NA	Water	8260C	
160-2075-2	7	Total/NA	Water	8260C	
160-2075-3	8	Total/NA	Water	8260C	
160-2075-4	9	Total/NA	Water	8260C	
160-2075-5	10	Total/NA	Water	8260C	
160-2075-6	11	Total/NA	Water	8260C	
LCS 160-46184/4	Lab Control Sample	Total/NA	Water	8260C	
LCSD 160-46184/5	Lab Control Sample Dup	Total/NA	Water	8260C	
MB 160-46184/2	Method Blank	Total/NA	Water	8260C	

Analysis Batch: 46185

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-2075-2	7	Total/NA	Water	8260C	
LCS 160-46185/4	Lab Control Sample	Total/NA	Water	8260C	
LCSD 160-46185/5	Lab Control Sample Dup	Total/NA	Water	8260C	
MB 160-46185/2	Method Blank	Total/NA	Water	8260C	

Metals

Prep Batch: 46002

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-2075-1	6	Total/NA	Water	7470A	
160-2075-1 MS	6	Total/NA	Water	7470A	
160-2075-1 MSD	6	Total/NA	Water	7470A	
160-2075-2	7	Total/NA	Water	7470A	
160-2075-3	8	Total/NA	Water	7470A	
160-2075-4	9	Total/NA	Water	7470A	
160-2075-5	10	Total/NA	Water	7470A	
160-2075-6	11	Total/NA	Water	7470A	
LCS 160-46002/2-A	Lab Control Sample	Total/NA	Water	7470A	
MB 160-46002/1-A	Method Blank	Total/NA	Water	7470A	

Prep Batch: 46024

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-2075-1	6	Total/NA	Water	3010A	
160-2075-2	7	Total/NA	Water	3010A	
160-2075-2 MS	7	Total/NA	Water	3010A	
160-2075-2 MSD	7	Total/NA	Water	3010A	
160-2075-3	8	Total/NA	Water	3010A	
160-2075-4	9	Total/NA	Water	3010A	
160-2075-5	10	Total/NA	Water	3010A	
160-2075-6	11	Total/NA	Water	3010A	
LCS 160-46024/2-A	Lab Control Sample	Total/NA	Water	3010A	
MB 160-46024/1-A	Method Blank	Total/NA	Water	3010A	

Analysis Batch: 46210

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-2075-1	6	Total/NA	Water	7470A	46002
160-2075-1 MS	6	Total/NA	Water	7470A	46002
160-2075-1 MSD	6	Total/NA	Water	7470A	46002

TestAmerica St. Louis

QC Association Summary

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Metals (Continued)

Analysis Batch: 46210 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-2075-2	7	Total/NA	Water	7470A	46002
160-2075-3	8	Total/NA	Water	7470A	46002
160-2075-4	9	Total/NA	Water	7470A	46002
160-2075-5	10	Total/NA	Water	7470A	46002
160-2075-6	11	Total/NA	Water	7470A	46002
LCS 160-46002/2-A	Lab Control Sample	Total/NA	Water	7470A	46002
MB 160-46002/1-A	Method Blank	Total/NA	Water	7470A	46002

Analysis Batch: 46401

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-2075-1	6	Total/NA	Water	6010C	46024
160-2075-2	7	Total/NA	Water	6010C	46024
160-2075-2 MS	7	Total/NA	Water	6010C	46024
160-2075-2 MSD	7	Total/NA	Water	6010C	46024
160-2075-3	8	Total/NA	Water	6010C	46024
160-2075-4	9	Total/NA	Water	6010C	46024
160-2075-5	10	Total/NA	Water	6010C	46024
160-2075-6	11	Total/NA	Water	6010C	46024
LCS 160-46024/2-A	Lab Control Sample	Total/NA	Water	6010C	46024
MB 160-46024/1-A	Method Blank	Total/NA	Water	6010C	46024

Analysis Batch: 46686

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-2075-5	10	Total/NA	Water	6010C	46024

Rad

Prep Batch: 45826

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-2075-1	6	Total/NA	Water	PrecSep_0	
160-2075-2	7	Total/NA	Water	PrecSep_0	
160-2075-3	8	Total/NA	Water	PrecSep_0	
160-2075-3 DU	8	Total/NA	Water	PrecSep_0	
160-2075-4	9	Total/NA	Water	PrecSep_0	
160-2075-5	10	Total/NA	Water	PrecSep_0	
160-2075-6	11	Total/NA	Water	PrecSep_0	
LCS 160-45826/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
MB 160-45826/1-A	Method Blank	Total/NA	Water	PrecSep_0	

Prep Batch: 45940

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-2075-1	6	Total/NA	Water	ExtChrom	
160-2075-1 DU	6	Total/NA	Water	ExtChrom	
160-2075-2	7	Total/NA	Water	ExtChrom	
160-2075-3	8	Total/NA	Water	ExtChrom	
160-2075-4	9	Total/NA	Water	ExtChrom	
160-2075-5	10	Total/NA	Water	ExtChrom	
160-2075-6	11	Total/NA	Water	ExtChrom	
LCS 160-45940/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
MB 160-45940/1-A	Method Blank	Total/NA	Water	ExtChrom	

TestAmerica St. Louis

QC Association Summary

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Rad (Continued)

Prep Batch: 45941

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-2075-1	6	Total/NA	Water	ExtChrom	
160-2075-1 DU	6	Total/NA	Water	ExtChrom	
160-2075-2	7	Total/NA	Water	ExtChrom	
160-2075-3	8	Total/NA	Water	ExtChrom	
160-2075-4	9	Total/NA	Water	ExtChrom	
160-2075-5	10	Total/NA	Water	ExtChrom	
160-2075-6	11	Total/NA	Water	ExtChrom	
LCS 160-45941/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
MB 160-45941/1-A	Method Blank	Total/NA	Water	ExtChrom	

TestAmerica St. Louis

Surrogate Summary

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (85-115)	DBFM (85-119)	BFB (82-121)	12DCE (82-132)
160-2075-1	6	97	105	97	111
160-2075-2	7	97	91	97	91
160-2075-2	7	100	101	100	95
160-2075-3	8	97	107	93	105
160-2075-4	9	97	108	93	101
160-2075-5	10	99	109	99	112
160-2075-6	11	98	107	95	109
LCS 160-46184/4	Lab Control Sample	102	96	95	98
LCS 160-46185/4	Lab Control Sample	103	98	92	98
LCSD 160-46184/5	Lab Control Sample Dup	105	103	94	101
LCSD 160-46185/5	Lab Control Sample Dup	105	101	92	100
MB 160-46184/2	Method Blank	97	104	103	110
MB 160-46185/2	Method Blank	101	101	100	101

Surrogate Legend

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

BFB = 4-Bromofluorobenzene (Surr)

12DCE = 1,2-Dichloroethane-d4 (Surr)

TestAmerica St. Louis

Tracer/Carrier Summary

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Yield (Acceptance Limits)	
		Ba (40-110)	Y (40-110)
160-2075-1	6	76.7	87.5
160-2075-2	7	82.0	88.6
160-2075-3	8	102	91.2
160-2075-3 DU	8	105	86.4
160-2075-4	9	105	92.7
160-2075-5	10	61.9	91.2
160-2075-6	11	85.5	84.9
LCS 160-45826/2-A	Lab Control Sample	97.6	88.2
MB 160-45826/1-A	Method Blank	96.5	92.7

Tracer/Carrier Legend

Ba = Ba Carrier
Y = Y Carrier

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Yield (Acceptance Limits)	
		Th-229 (30-110)	
160-2075-1	6	62.8	
160-2075-1 DU	6	49.6	
160-2075-2	7	65.2	
160-2075-3	8	72.7	
160-2075-4	9	75.7	
160-2075-5	10	62.8	
160-2075-6	11	56.4	
LCS 160-45940/2-A	Lab Control Sample	79.0	
MB 160-45940/1-A	Method Blank	78.5	

Tracer/Carrier Legend

Th-229 = Thorium-229

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Yield (Acceptance Limits)	
		U-232 (30-110)	
160-2075-1	6	80.5	
160-2075-1 DU	6	76.1	
160-2075-2	7	91.0	
160-2075-3	8	92.8	
160-2075-4	9	96.0	
160-2075-5	10	88.2	
160-2075-6	11	93.7	
LCS 160-45941/2-A	Lab Control Sample	93.6	
MB 160-45941/1-A	Method Blank	97.3	

Tracer/Carrier Legend

TestAmerica St. Louis

Tracer/Carrier Summary

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2075-1

U-232 = Uranium-232

TestAmerica St. Louis